QSTVE

MAN AND MACHINE / QSTVE READING EDITION

100

Ideas for volunteer-powered AI science

Small tasks. Public evidence. Work scientists can check.

One idea. One prompt. A place to begin.

100 original proposals across ten fields, now paired with 100 copy/paste prompts for a first research or prototype session. Choose a question, check the permissions and start with a baseline, not a claim of discovery.

On hold, not abandoned. This exploratory experiment is not moving forward now; other priorities come first. No pilot or scientific study was run. The ideas remain for readers to question or develop with qualified scientific partners.

Choose a field. Start small.

All 100 entries retain their original IDs, titles and research wording. Their candidate datasets and existing programs are sources or analogs, not proof that a proposed service works, exists or has a committed partner.

How to use the prompts. Copy the complete box into an AI assistant. Each asks for a bounded first step, permission checks, a simple baseline and qualified review. A prompt is a planning aid: verify citations, arithmetic, code and outputs yourself. An assistant may not have data access or execution tools.

Keep the boundary. Public access is not a reuse license. Use public or explicitly permitted data; no confidential employer files or personal records. Stay with nonclinical, offline research. No diagnosis, patient matching, biological experimentation, live operational decisions or unsupported findings.

Read the page. Original proposal above; new starter prompt below. Local models, numerical compute and human review do different work. Research remains subject to scientific ownership, held-out evaluation and adoption.

TEN FIELDS / CLICK A ROW TO EXPLORE

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Start with Moonshots.

The discussion that inspired this collection appears in episode 311, recorded November 13, 2026. Its official description identifies the four participants below.[62]

WATCH / LISTEN TO EPISODE 311 →

Jensen's Departure, NVIDIA's Succession Plan, AI Doomer Response, and Demis Talks RSI | #311 (Live)

The SETI@home reference appears during the astronomy conversation around 1:42. A retrieved machine transcript locates the discussion; this is a source-identification check, not independent validation of the episode's scientific or news claims.[63]

Jump to the SETI@home discussion (about 1:42) →

Peter H. Diamandis

Host · Website

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Dr. Alexander Wissner-Gross

Participant · Website · LinkedIn

Emad Mostaque

Guest · Intelligent Internet · LinkedIn

Participant identities and LinkedIn destinations come from the official episode description. Website identities were retrieved separately; Intelligent Internet is the organization linked for Emad. Inclusion is attribution, not endorsement.[62][64][65][66][67]

Catalog sources were retrieved November 15; episode and participant checks were added November 16, 2026. This edition preserves those links; it does not claim a new live audit.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

001 Trial eligibility into auditable logic

LOCAL MODEL / ORIGINAL PROPOSAL

Eligibility prose is hard to compare across studies.

Task Extract inclusion/exclusion clauses for one study with exact text spans.

Input ClinicalTrials.gov public registry records; public API available.

Check Clinician-curated clause gold set; count unsupported clauses and negation errors.

Limit Manual adjudication and ambiguous eligibility; never match real patients.

Status Proposed extraction service, not a registry feature. [51]

GET STARTED / COPY & PASTE

Help me start “Trial eligibility into auditable logic” as a beginner research exercise. Choose one registry study and turn five eligibility clauses into a table of exact quotes, inclusion/exclusion labels, negation and unknowns. Include an ambiguous clause and a human correction column; do not match any real person to a trial.

Candidate input: ClinicalTrials.gov public registry records; public API available. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Clinician-curated clause gold set; count unsupported clauses and negation errors.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

002 Outcome-unit mismatch finder

LOCAL MODEL / ORIGINAL PROPOSAL

Similar trial endpoints may use incompatible units or time horizons.

Task Normalize one outcome's unit, direction and follow-up window.

Input Public ClinicalTrials.gov outcome fields; larger sample requires retrieval.

Check Double-annotated records; exact unit and time agreement; abstain on ambiguity.

Limit Semantic drift and missing fields; no treatment-effect claims.

Status Proposed quality-control layer over an existing registry. [51]

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Help me start “Outcome-unit mismatch finder” as a beginner research exercise. Select five outcome fields from two studies on the same broad topic. Make a worksheet separating measurement, unit, direction and follow-up window; flag incomparable outcomes instead of converting them by guesswork.

Candidate input: Public ClinicalTrials.gov outcome fields; larger sample requires retrieval. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Double-annotated records; exact unit and time agreement; abstain on ambiguity.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

003 Registered-result completeness audit

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Missing results can obscure the evidence landscape.

Task Compare one study's registry fields with explicitly linked publication metadata.

Input ClinicalTrials.gov records and Crossref publication metadata.

Check Manual sample of links; report missingness rather than misconduct.

Limit Publication linkage is incomplete; no inference that unlinked means unpublished.

Status Proposed bounded audit, not evidence of reporting violations. [51] [43]

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Help me start “Registered-result completeness audit” as a beginner research exercise. Start with five registry IDs and only publications explicitly linked from their records. Design a dated presence/absence/unknown checklist for result fields; treat an absent publication link as unknown, not proof of nonpublication or misconduct.

Candidate input: ClinicalTrials.gov records and Crossref publication metadata. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Manual sample of links; report missingness rather than misconduct.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

004 Duplicate trial identity resolver

LOCAL MODEL / ORIGINAL PROPOSAL

Different titles can conceal duplicate records in evidence searches.

Task Score one candidate record pair using IDs, dates and text embeddings.

Input ClinicalTrials.gov IDs and Crossref titles/identifiers.

Check Held-out pair labels; prioritize precision and preserve separate records.

Limit False merges erase evidence; humans approve every merge.

Status Proposed entity-resolution aid using public metadata. [51] [43]

GET STARTED / COPY & PASTE

Help me start “Duplicate trial identity resolver” as a beginner research exercise. Create ten candidate pairs using public study identifiers and titles. Begin with an exact-ID rule, keep a separate review queue for near matches, and never merge or delete records automatically.

Candidate input: ClinicalTrials.gov IDs and Crossref titles/identifiers. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Held-out pair labels; prioritize precision and preserve separate records.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

005 Adverse-event duplicate sensitivity study

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Repeated reports can distort descriptive counts.

Task Compare deduplication rules within one drug-event time slice.

Input openFDA publicly releasable FAERS records and documented caveats.

Check Reproduce baseline counts; bootstrap differences; audit matched reports.

Limit Reporting bias; never infer incidence, causality or prescribe.

Status Proposed robustness study; openFDA is the actual input platform. [17]

GET STARTED / COPY & PASTE

Help me start “Adverse-event duplicate sensitivity study” as a beginner research exercise. Use one small public FAERS slice to outline two documented deduplication rules. Preserve raw counts, show which records each rule would group, and explain why spontaneous reports cannot establish incidence or causality.

Candidate input: openFDA publicly releasable FAERS records and documented caveats. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reproduce baseline counts; bootstrap differences; audit matched reports.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

006 Adverse-event field harmonizer

LOCAL MODEL / ORIGINAL PROPOSAL

Inconsistent terms complicate descriptive safety research.

Task Suggest normalized product-name groups with original values preserved.

Input openFDA FAERS structured fields; sampled export still required.

Check Expert-labeled alias pairs and conservative abstention thresholds.

Limit Misgrouping products and sparse context; no patient recommendations.

Status Proposed curation aid, not automated safety surveillance. [17]

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Help me start “Adverse-event field harmonizer” as a beginner research exercise. Prepare ten permitted product-name strings and a conservative alias table with original values intact. Include similar-looking names that must remain separate; require a drug-data curator to approve mappings before use.

Candidate input: openFDA FAERS structured fields; sampled export still required. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert-labeled alias pairs and conservative abstention thresholds.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

007 Trial geography coverage atlas

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Research participation locations can be poorly documented.

Task Aggregate one study's sites to broad regions and flag missing location fields.

Input Public ClinicalTrials.gov facility and study metadata.

Check Manual location sample and reconciliation of aggregate totals.

Limit Registry coverage is not disease burden; exclude contact details.

Status Proposed descriptive registry-quality atlas. [51]

GET STARTED / COPY & PASTE

Help me start “Trial geography coverage atlas” as a beginner research exercise. Pick five studies and aggregate their published site fields to country or broad region. Track missing sites separately and reconcile totals; do not interpret site coverage as population access to treatment.

Candidate input: Public ClinicalTrials.gov facility and study metadata. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Manual location sample and reconciliation of aggregate totals.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

008 Medical citation-update sentinel

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Evidence reviews can miss corrections attached to publications.

Task Inspect one DOI's correction/retraction relationships without interpreting the paper.

Input Crossref metadata, including update relations where deposited.

Check Cross-check publisher links; report relation availability and false alerts.

Limit Depositor metadata is incomplete; no automatic accusation or clinical update.

Status Proposed reviewer queue based on an existing metadata API. [43]

GET STARTED / COPY & PASTE

Help me start “Medical citation-update sentinel” as a beginner research exercise. Use five public DOIs to check correction or retraction relationship fields and linked publisher notices. Draft a dated alert table that distinguishes confirmed notices, missing metadata and lookup failures without judging the underlying research.

Candidate input: Crossref metadata, including update relations where deposited. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Cross-check publisher links; report relation availability and false alerts.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

009 Trial plain-language fidelity test

HYBRID / ORIGINAL PROPOSAL

Simplified trial descriptions can silently change eligibility or purpose.

Task Generate one short explanation with sentence-to-source alignment.

Input Public ClinicalTrials.gov study descriptions.

Check Independent raters check omissions, changed numbers and unsupported benefits.

Limit Human review is costly; research text only, not recruitment or advice.

Status Proposed controlled evaluation, not a patient service. [51]

GET STARTED / COPY & PASTE

Help me start “Trial plain-language fidelity test” as a beginner research exercise. Choose one public trial summary and draft a 100-word explanation with every sentence linked to an exact source span. Build a checklist for altered numbers, omitted caveats and unsupported benefit language; do not offer medical advice.

Candidate input: Public ClinicalTrials.gov study descriptions. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Independent raters check omissions, changed numbers and unsupported benefits.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 01 / MEDICAL EVIDENCE WITHOUT MEDICAL ADVICE

010 Study-design retrieval benchmark

LOCAL MODEL / ORIGINAL PROPOSAL

Reviewers need relevant studies, not confident invented summaries.

Task Rank a fixed candidate pool for one researcher-written question.

Input ClinicalTrials.gov public protocol descriptions and Crossref metadata.

Check Blinded relevance labels; recall at fixed review budget versus keyword search.

Limit Gold labels and licensing; must beat simple search to justify energy.

Status Proposed benchmark of local embedding models. [51] [43]

GET STARTED / COPY & PASTE

Help me start “Study-design retrieval benchmark” as a beginner research exercise. Write one narrow study-design question and manually label ten public registry records for relevance. Compare a simple keyword ranking with one optional local model using the same fixed review budget and a held-out subset.

Candidate input: ClinicalTrials.gov public protocol descriptions and Crossref metadata. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blinded relevance labels; recall at fixed review budget versus keyword search.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

011 Cell-count reproducibility challenge

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Image-analysis methods can disagree about cell counts.

Task Process one image with fixed segmentation settings and record count error.

Input BBBC005 synthetic microscopy with stated ground truth.

Check Compare true counts and analytic baselines across blur conditions.

Limit Synthetic-to-real gap; downloaded subset and rights must be checked.

Status Proposed volunteer benchmark using an established benchmark dataset. [54]

GET STARTED / COPY & PASTE

Help me start “Cell-count reproducibility challenge” as a beginner research exercise. Begin with five licensed microscopy images with reference cell counts. Outline a fixed segmentation baseline and an error table across original and blurred copies; use established images only, not new biological experiments.

Candidate input: BBBC005 synthetic microscopy with stated ground truth. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Compare true counts and analytic baselines across blur conditions.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

012 Microscopy focus triage

LOCAL MODEL / ORIGINAL PROPOSAL

Blurred images waste downstream analysis effort.

Task Score one image's focus quality and uncertainty.

Input BBBC005 simulated image conditions and ground truth.

Check Hold out blur levels; compare a sharpness metric and blinded reviewers.

Limit Small models may not beat cheap filters; no clinical imaging use.

Status Proposed local vision-model precheck, not established deployment. [54]

GET STARTED / COPY & PASTE

Help me start “Microscopy focus triage” as a beginner research exercise. Take ten licensed microscopy images and compare a simple focus score with blinded human sharpness labels. Hold back several blur conditions and define an uncertainty bucket instead of discarding low-scoring images automatically.

Candidate input: BBBC005 simulated image conditions and ground truth. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Hold out blur levels; compare a sharpness metric and blinded reviewers.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

013 Cell-boundary disagreement atlas

HYBRID / ORIGINAL PROPOSAL

Aggregate scores hide where segmentation algorithms fail.

Task Compare one pair of cell masks and label disagreement geometry.

Input BBBC annotated image sets; choose a set with matching masks.

Check Boundary overlap plus expert review of sampled splits/merges.

Limit Mask availability varies by set; avoid patient-derived identifiers.

Status Proposed error taxonomy extending existing benchmark practice. [18]

GET STARTED / COPY & PASTE

Help me start “Cell-boundary disagreement atlas” as a beginner research exercise. Select three licensed images with paired reference masks. Sketch an overlay workflow that separates boundary shifts, splits and merges; build a five-case expert-review sheet before proposing any automatic correction.

Candidate input: BBBC annotated image sets; choose a set with matching masks. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Boundary overlap plus expert review of sampled splits/merges.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

014 Plate illumination correction bake-off

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Lighting gradients can masquerade as biological differences.

Task Apply one correction method to one image batch.

Input BBBC image collections; candidate plate-structured subset requires checking.

Check Known-control stability and preserved object-intensity ranking.

Limit Suitable controls may be absent; do not invent biological effects.

Status Proposed numerical methods benchmark, conditional on controls. [18]

GET STARTED / COPY & PASTE

Help me start “Plate illumination correction bake-off” as a beginner research exercise. Use a tiny licensed image batch with documented controls to compare an uncorrected baseline and one illumination correction. Track whether control variation improves without changing the ordering of object intensities.

Candidate input: BBBC image collections; candidate plate-structured subset requires checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known-control stability and preserved object-intensity ranking.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

015 Synthetic-cell uncertainty calibration

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

A confident count can still be wrong under imaging shifts.

Task Run one corruption/configuration batch and collect prediction intervals.

Input BBBC005 synthetic-cell images and expected counts.

Check Coverage versus interval width on withheld conditions.

Limit Synthetic realism and repeated model runs consume resources.

Status Proposed calibration study, distinct from counting accuracy. [54]

GET STARTED / COPY & PASTE

Help me start “Synthetic-cell uncertainty calibration” as a beginner research exercise. Use an existing permitted synthetic-cell generator or released synthetic examples, not new biological protocols. Plan a small blur/noise grid with held-out conditions and an interval-coverage worksheet; keep simulated evidence clearly labeled.

Candidate input: BBBC005 synthetic-cell images and expected counts. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Coverage versus interval width on withheld conditions.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

016 Protein structure provenance cards

LOCAL MODEL / ORIGINAL PROPOSAL

Users may confuse experimental structures with computed models.

Task Extract one structure's method, resolution if applicable, and caveats.

Input RCSB PDB entry metadata and linked validation information.

Check Schema checks and curator comparison; every statement links to fields.

Limit Models must not invent resolution or biological interpretation.

Status Proposed metadata explanation layer; no protein design. [19]

GET STARTED / COPY & PASTE

Help me start “Protein structure provenance cards” as a beginner research exercise. Pick three public structure accessions and build provenance cards from explicit deposited fields. Separate experimental method, applicable resolution, model status and missing facts; make no functional or therapeutic inference.

Candidate input: RCSB PDB entry metadata and linked validation information. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Schema checks and curator comparison; every statement links to fields.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

017 Missing-residue bias census

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Incomplete structures can bias downstream method evaluation.

Task Compute missing-residue coverage for one structure and chain.

Input RCSB PDB coordinate and sequence records.

Check Cross-check sequence alignment and deposited annotations.

Limit Structure selection bias and numbering conventions; no therapeutic claims.

Status Proposed public structural-quality audit. [19]

GET STARTED / COPY & PASTE

Help me start “Missing-residue bias census” as a beginner research exercise. Choose three public structure chains and compare deposited sequences with resolved residues. Build a coverage table that distinguishes missing coordinates from sequence differences and flags alignment uncertainty for curator review.

Candidate input: RCSB PDB coordinate and sequence records. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Cross-check sequence alignment and deposited annotations.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

018 Structure-alignment reproducibility grid

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Different alignment settings may yield inconsistent similarity scores.

Task Run one structure pair under one alignment configuration.

Input Public RCSB PDB structures in a curator-selected benign benchmark.

Check Known homolog controls, rigid-transform invariance and replicated outputs.

Limit Quadratic pair growth; cap pairs and avoid biological-design tasks.

Status Proposed numerical reproducibility exercise. [19]

GET STARTED / COPY & PASTE

Help me start “Structure-alignment reproducibility grid” as a beginner research exercise. Select one known homolog pair from public structures and outline a documented alignment baseline. Add a harmless rigid translation/rotation control and two repeated runs; record software versions, parameters and agreement tolerances.

Candidate input: Public RCSB PDB structures in a curator-selected benign benchmark. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known homolog controls, rigid-transform invariance and replicated outputs.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

019 Protein-motion teaching replication

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Simulation settings can change conclusions about molecular motion.

Task Run one short seeded trajectory only after expert protocol review.

Input Benign curated PDB structures; approved force-field inputs remain a candidate.

Check Energy conservation checks, independent seeds and published reference comparison.

Limit Setup expertise, GPU energy and trajectory storage dominate.

Status Proposed nonclinical method replication; Folding@home is a numeric analog. [19] [2]

GET STARTED / COPY & PASTE

Help me start “Protein-motion teaching replication” as a beginner research exercise. Find a published teaching protocol and a small permitted example system. Draft only a reproduction plan with seed, timestep, resource cap and energy checks; stop before running until a qualified molecular-simulation expert approves the protocol.

Candidate input: Benign curated PDB structures; approved force-field inputs remain a candidate. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Energy conservation checks, independent seeds and published reference comparison.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 02 / CELLS, PROTEINS, AND REPRODUCIBLE BIOMEDICINE

020 Bioimage annotation adjudication club

HUMAN REVIEW / ORIGINAL PROPOSAL

Ambiguous reference labels limit honest model comparison.

Task Have multiple trained volunteers adjudicate one disputed object boundary.

Input BBBC image sets with documented annotations.

Check Blind duplicate cases, expert arbitration and inter-rater agreement.

Limit Training effort and annotation rights; no diagnostic decisions.

Status Proposed human-science workflow, not donated inference. [18]

GET STARTED / COPY & PASTE

Help me start “Bioimage annotation adjudication club” as a beginner research exercise. Prepare five already licensed cell-boundary disputes with reference masks. Draft volunteer instructions, blind duplicates and an expert escalation form; collect no new human or biological samples and make no diagnostic judgments.

Candidate input: BBBC image sets with documented annotations. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blind duplicate cases, expert arbitration and inter-rater agreement.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

021 Gravitational-wave tutorial replication swarm

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Scientific tutorials may behave differently across machines.

Task Reproduce one fixed event-analysis configuration on a bounded segment.

Input GWOSC public tutorials, event data and software links.

Check Compare recovered peak time and numerical tolerance with a reference run.

Limit Data transfer and version pinning; not a new detection claim.

Status Proposed replication network on established open data. [20]

GET STARTED / COPY & PASTE

Help me start “Gravitational-wave tutorial replication swarm” as a beginner research exercise. Choose one official open gravitational-wave tutorial and its bounded event segment. Make a local reproduction checklist with pinned versions, expected peak-time tolerance and a CPU/time cap before attempting any batch distribution.

Candidate input: GWOSC public tutorials, event data and software links. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Compare recovered peak time and numerical tolerance with a reference run.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

022 Detector-glitch uncertainty queue

HYBRID / ORIGINAL PROPOSAL

Unusual detector artifacts can evade standard labels.

Task Rank one spectrogram batch for expert/human review.

Input Gravity Spy public project and GWOSC data; labeled export needs checking.

Check Held-out glitch labels, calibration and reviewer time saved.

Limit Labeled-data access and expert attention; no live detector access.

Status Proposed triage extension of actual AI-assisted citizen science. [50] [20] [60]

GET STARTED / COPY & PASTE

Help me start “Detector-glitch uncertainty queue” as a beginner research exercise. Select ten permitted labeled glitch spectrograms and propose a baseline ranking for human review. Reserve examples for a blind check and measure useful labels per reviewer minute rather than claiming new astrophysical events.

Candidate input: Gravity Spy public project and GWOSC data; labeled export needs checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Held-out glitch labels, calibration and reviewer time saved.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

023 Continuous-wave search parameter shards

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Faint periodic signals need many independent numerical hypotheses.

Task Evaluate one project-issued parameter-space shard.

Input Einstein@Home documented neutron-star search programs; work only through project authorization.

Check Project validators, independent replicas and vetted numerical tolerances.

Limit Queue and hardware eligibility unknown; energy and long runtime.

Status Established volunteer-compute workload, not a new LLM application. [7]

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Help me start “Continuous-wave search parameter shards” as a beginner research exercise. Locate the official project's documented volunteer entry point and validator requirements. Draft a readiness checklist for a project-issued parameter shard; do not invent shards, submit fabricated work or run an independent all-sky search.

Candidate input: Einstein@Home documented neutron-star search programs; work only through project authorization. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Project validators, independent replicas and vetted numerical tolerances.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

024 Radio interference morphology audit

HYBRID / ORIGINAL PROPOSAL

Terrestrial interference can overwhelm unusual-signal searches.

Task Inspect one time-frequency tile and tag interference shape.

Input Breakthrough Listen public open-data archive; manageable labeled subset requires checking.

Check Known interference examples and blinded expert review of anomalies.

Limit Large downloads and false positives; never label a signal extraterrestrial.

Status Proposed archival triage; SETI provides the historical analog. [25] [10]

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Help me start “Radio interference morphology audit” as a beginner research exercise. Start with five licensed time-frequency tiles and a documented interference taxonomy. Prepare a review sheet of visible morphology, uncertainty and expert labels; do not call unexplained features extraterrestrial signals.

Candidate input: Breakthrough Listen public open-data archive; manageable labeled subset requires checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known interference examples and blinded expert review of anomalies.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

025 SETI candidate ranking reproducibility

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Historical rankings need transparent handling of interference and selection.

Task Recompute one ranking sensitivity only if suitable public tables are released.

Input SETI@home analysis descriptions; candidate-level downloadable tables are unverified.

Check Compare documented rankings and sensitivity to thresholds.

Limit Actual machine-readable candidate access is a hard prerequisite.

Status Conditional proposal; current analysis is not resumed home work distribution. [9] [10]

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Help me start “SETI candidate ranking reproducibility” as a beginner research exercise. First check whether a suitable public candidate table and ranking method actually exist. If either is unavailable, produce a blocker list; otherwise plan a ten-row threshold-sensitivity replay with no discovery claim.

Candidate input: SETI@home analysis descriptions; candidate-level downloadable tables are unverified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Compare documented rankings and sensitivity to thresholds.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

026 TESS transit injection recovery

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Search completeness varies with noise and observing gaps.

Task Inject one synthetic transit into one light curve and recover it numerically.

Input MAST TESS public time-series products; selected light-curve files require retrieval.

Check Known injected parameters; completeness and false-alarm curves.

Limit Download volume and realistic injection protocol; no planet announcement.

Status Proposed distributed calibration, not LLM planet finding. [21] [23]

GET STARTED / COPY & PASTE

Help me start “TESS transit injection recovery” as a beginner research exercise. Use one permitted TESS light curve and a documented transit-injection tutorial. Plan three explicitly synthetic injections, a baseline recovery method and a false-alarm check on an uninjected control.

Candidate input: MAST TESS public time-series products; selected light-curve files require retrieval. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known injected parameters; completeness and false-alarm curves.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

027 Exoplanet parameter contradiction cards

LOCAL MODEL / ORIGINAL PROPOSAL

Published planet properties can disagree across references.

Task Compare one planet's reported parameter values with units and provenance.

Input NASA Exoplanet Archive tables and cited references.

Check Numeric/unit checks and astronomer adjudication of discrepancies.

Limit Different models and epochs are not necessarily mistakes.

Status Proposed evidence-linked catalog review aid. [23]

GET STARTED / COPY & PASTE

Help me start “Exoplanet parameter contradiction cards” as a beginner research exercise. Choose three planets in a public archive and tabulate two reported values for one parameter with units, uncertainties and provenance. Distinguish different definitions or epochs from actual contradictions and route unresolved cases to an astronomer.

Candidate input: NASA Exoplanet Archive tables and cited references. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Numeric/unit checks and astronomer adjudication of discrepancies.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

028 Gaia astrometric selection audit

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Catalog cuts can alter apparent stellar populations.

Task Evaluate one quality-cut configuration on a fixed sky sample.

Input ESA Gaia released catalogs and documented quality fields.

Check Reproduce counts; injected selection tests and independent scripts.

Limit Catalog size and selection effects; no unsupported population claims.

Status Proposed sensitivity analysis on an established archive. [22]

GET STARTED / COPY & PASTE

Help me start “Gaia astrometric selection audit” as a beginner research exercise. Select one small Gaia sky sample through the documented query service. Write two explicit quality-cut recipes and a count-reconciliation table; preserve query text and explain why selected stars are not a representative census.

Candidate input: ESA Gaia released catalogs and documented quality fields. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reproduce counts; injected selection tests and independent scripts.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

029 Stellar spectral outlier explanations

HYBRID / ORIGINAL PROPOSAL

Rare spectra deserve review without invented classifications.

Task Rank one spectral batch, then describe measured deviations with citations.

Input SDSS public spectral data release; selected spectra and labels need checking.

Check Known-class holdouts and astronomer review; report rejection rate.

Limit Outliers are often artifacts; large model outputs need checking.

Status Proposed numeric-plus-language triage over public survey data. [26]

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Help me start “Stellar spectral outlier explanations” as a beginner research exercise. Choose a tiny licensed labeled stellar-spectrum sample and a simple numeric distance baseline. Plan a held-out outlier ranking with measured wavelength deviations and an astronomer review sheet, not invented physical explanations.

Candidate input: SDSS public spectral data release; selected spectra and labels need checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known-class holdouts and astronomer review; report rejection rate.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 03 / SIGNALS FROM THE COSMOS

030 Astronomy archive metadata repair suggestions

LOCAL MODEL / ORIGINAL PROPOSAL

Missing units and inconsistent headers undermine reuse.

Task Check one downloaded product header against its published schema.

Input MAST TESS and NASA Exoplanet Archive product documentation.

Check Deterministic schema baseline; expert review of every suggested change.

Limit No writeback; schema versions and domain vocabulary complicate adoption.

Status Proposed read-only metadata linting service. [21] [23]

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Help me start “Astronomy archive metadata repair suggestions” as a beginner research exercise. Download metadata for three permitted astronomy products and their official schemas. Produce a read-only linter checklist with original values and suggested repairs in a separate file; never edit the archive or infer missing observations.

Candidate input: MAST TESS and NASA Exoplanet Archive product documentation. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Deterministic schema baseline; expert review of every suggested change.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

031 Galaxy morphology confidence audit

LOCAL MODEL / ORIGINAL PROPOSAL

Galaxy labels can fail on unfamiliar observing conditions.

Task Run one image batch through fixed morphology weights.

Input Zoobot documentation and SDSS public images; compatible labeled subset must be selected.

Check Hold out sky fields; calibration, confusion matrix and human disagreement.

Limit Survey shift and image rights; benchmark existing weights before retraining.

Status Proposed calibration extension of actual Zoobot/Galaxy Zoo work. [49] [26]

GET STARTED / COPY & PASTE

Help me start “Galaxy morphology confidence audit” as a beginner research exercise. Use twenty licensed galaxy images and a permitted fixed morphology model. Split by sky field, compare with a simple baseline, and draft a confusion/calibration worksheet with an explicit human-disagreement category.

Candidate input: Zoobot documentation and SDSS public images; compatible labeled subset must be selected. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Hold out sky fields; calibration, confusion matrix and human disagreement.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

032 Faint galaxy artifact tribunal

HUMAN REVIEW / ORIGINAL PROPOSAL

Processing artifacts can resemble interesting galaxy features.

Task Multiple volunteers adjudicate one model-flagged feature.

Input SDSS public image cutouts; candidate artifact labels need expert preparation.

Check Blind duplicates and expert consensus; measure artifact rejection.

Limit Expert labels and seeing conditions; humans are not token donors.

Status Proposed human review layer, analogous to Zooniverse. [26] [11]

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Help me start “Faint galaxy artifact tribunal” as a beginner research exercise. Prepare five licensed galaxy-image features, including known imaging artifacts and blind duplicates. Draft a volunteer adjudication card and astronomer escalation rule; preserve uncertain cases instead of announcing faint-object discoveries.

Candidate input: SDSS public image cutouts; candidate artifact labels need expert preparation. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blind duplicates and expert consensus; measure artifact rejection.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

033 Planetary crater edge benchmark

LOCAL MODEL / ORIGINAL PROPOSAL

Crater counts depend on inconsistent rim boundaries.

Task Segment one image tile and report uncertain rim segments.

Input NASA PDS planetary imagery; curated crater masks remain a candidate.

Check Expert rim masks, diameter error and held-out terrains.

Limit Label creation and illumination bias; no unsupported geological age claims.

Status Proposed benchmark, not an operating PDS volunteer program. [24]

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Help me start “Planetary crater edge benchmark” as a beginner research exercise. Select two licensed planetary image tiles with expert crater-rim annotations. Plan an edge baseline, uncertain-rim overlays and diameter-error measurement on held-out terrain; do not treat every circular feature as a crater.

Candidate input: NASA PDS planetary imagery; curated crater masks remain a candidate. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert rim masks, diameter error and held-out terrains.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

034 Planetary image registration challenge

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Misaligned repeat images can masquerade as surface change.

Task Register one image pair and estimate alignment uncertainty.

Input PDS image pairs with suitable geometry; exact pairs require screening.

Check Known landmarks, synthetic shifts and residual vector maps.

Limit Geometry metadata and projection expertise dominate.

Status Proposed numerical precursor to change detection. [24]

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Help me start “Planetary image registration challenge” as a beginner research exercise. Choose one permitted image pair with known landmarks and create a copy with a documented synthetic shift. Plan registration residual vectors and uncertainty checks before comparing any naturally changed surfaces.

Candidate input: PDS image pairs with suitable geometry; exact pairs require screening. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known landmarks, synthetic shifts and residual vector maps.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

035 Mars surface-change review cards

HYBRID / ORIGINAL PROPOSAL

Interesting changes are buried among lighting differences.

Task Create one before/after candidate card for human adjudication.

Input Public PDS repeat-imaging collections; licensed pair selection untested.

Check Stable-area controls and independent reviewers; reject shadow artifacts.

Limit Season, view geometry and registration errors; no operational claims.

Status Proposed archival discovery aid following citizen-science patterns. [24] [11]

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Help me start “Mars surface-change review cards” as a beginner research exercise. Start with a licensed, well-documented Mars before/after pair and one stable control area. Draft a card showing acquisition geometry, shadows and alignment limits; require independent review before labeling a surface change.

Candidate input: Public PDS repeat-imaging collections; licensed pair selection untested. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Stable-area controls and independent reviewers; reject shadow artifacts.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

036 Planetary spectral mineral uncertainty map

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Spectral fits can overstate mineral identifications.

Task Fit one spectrum with a documented numeric mixture model.

Input PDS spectral products; matching reference library must be verified.

Check Reference mixtures, residuals and sensitivity to calibration choices.

Limit Library suitability and atmospheric correction; never LLM-derived chemistry.

Status Conditional numerical proposal with unverified reference-library access. [24]

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Help me start “Planetary spectral mineral uncertainty map” as a beginner research exercise. Find a documented public reference spectrum and permitted mixture examples. Outline a numeric fit with residuals and calibration sensitivity; label uncertain components and avoid treating a model coefficient as confirmed mineral identification.

Candidate input: PDS spectral products; matching reference library must be verified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reference mixtures, residuals and sensitivity to calibration choices.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

037 Asteroid tracklet consistency review

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

False associations can contaminate moving-object candidate lists.

Task Check one candidate tracklet against timing and motion constraints.

Input PDS small-body products; time-tagged detection subset is a candidate.

Check Injected tracks and astronomer-approved residual thresholds.

Limit Suitable detections may not be available; no impact warnings.

Status Conditional proposal, not a verified discovery pipeline. [24]

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Help me start “Asteroid tracklet consistency review” as a beginner research exercise. Use public teaching tracklets or explicitly synthetic positions with known times. Plan unit/timestamp checks and residual plots against a documented motion baseline; ask an astronomer to set thresholds and make no operational hazard claim.

Candidate input: PDS small-body products; time-tagged detection subset is a candidate. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Injected tracks and astronomer-approved residual thresholds.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

038 TESS variable-star shape atlas

LOCAL MODEL / ORIGINAL PROPOSAL

Variability shape can be lost in simple summary statistics.

Task Embed one normalized curve and retrieve comparable shapes.

Input MAST TESS light curves; curated variability labels require checking.

Check Held-out labeled stars and simple Fourier-feature baseline.

Limit Systematics resemble variability; scientific class claims need experts.

Status Proposed retrieval aid distinct from transit injection. [21]

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Help me start “TESS variable-star shape atlas” as a beginner research exercise. Choose ten permitted labeled TESS variable-star curves. Plan a normalization recipe and simple Fourier-feature retrieval baseline, keeping labeled stars separate for evaluation and recording gaps rather than inventing measurements.

Candidate input: MAST TESS light curves; curated variability labels require checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Held-out labeled stars and simple Fourier-feature baseline.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

039 Planetary archive accessibility captions

HYBRID / ORIGINAL PROPOSAL

Technical archive images are difficult to explore nonvisually.

Task Draft one factual accessibility description grounded in metadata.

Input PDS public images with captions and metadata.

Check Blind accessibility review; count unsupported objects and spatial errors.

Limit Human review and rights; model cannot infer unseen geological facts.

Status Proposed assistive curation, not automated scientific interpretation. [24]

GET STARTED / COPY & PASTE

Help me start “Planetary archive accessibility captions” as a beginner research exercise. Take three permitted planetary images with official metadata and draft concise accessibility descriptions. Separate visible features from metadata facts and mark uncertain spatial language; prepare questions for an accessibility reviewer and planetary scientist.

Candidate input: PDS public images with captions and metadata. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blind accessibility review; count unsupported objects and spatial errors.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 04 / PLANETS AND THE CHANGING SKY

040 Survey footprint coverage reconciler

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Researchers can mistake missing sky coverage for absent objects.

Task Compare catalog counts within one coarsened sky tile.

Input Gaia and SDSS release coverage documentation and catalogs.

Check Catalog query replication and selection-function sanity checks.

Limit Incompatible depth and epochs; no naive cross-survey completeness claims.

Status Proposed coverage diagnostic across established archives. [22] [26]

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Help me start “Survey footprint coverage reconciler” as a beginner research exercise. Pick one coarse sky tile and two documented public catalog queries. Reconcile raw and filtered counts with footprints, magnitude limits and selection rules; record query differences before interpreting gaps as missing objects.

Candidate input: Gaia and SDSS release coverage documentation and catalogs. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Catalog query replication and selection-function sanity checks.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

041 Weather-station discontinuity screen

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Instrument changes can mimic climate shifts.

Task Test one station-variable series for candidate breakpoints.

Input NOAA GHCN-Daily station series and quality flags.

Check Synthetic breaks, neighbor controls and withheld periods.

Limit Metadata gaps; screen candidates rather than silently correcting records.

Status Proposed quality-control exercise on an established archive. [28] [55]

GET STARTED / COPY & PASTE

Help me start “Weather-station discontinuity screen” as a beginner research exercise. Use one public station-variable series and a neighboring control. Plan a simple breakpoint screen plus a copy with a labeled synthetic break; hold back time periods and do not call every discontinuity climate change.

Candidate input: NOAA GHCN-Daily station series and quality flags. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Synthetic breaks, neighbor controls and withheld periods.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

042 Weather flag explanation assistant

LOCAL MODEL / ORIGINAL PROPOSAL

Quality flags are easy to misinterpret in climate analysis.

Task Explain one flagged record using exact documentation references.

Input GHCN-Daily documentation, flags and public station files.

Check Rule-based decoder baseline; zero invented flag meanings.

Limit A simple lookup may win; no climate conclusions from isolated flags.

Status Proposed small-model explanation benchmark. [28] [55]

GET STARTED / COPY & PASTE

Help me start “Weather flag explanation assistant” as a beginner research exercise. Choose five flagged weather records and the exact version of their flag documentation. Create a quote-backed decoder table with unknown values left unresolved, then compare a rules-only explanation with any model-generated wording.

Candidate input: GHCN-Daily documentation, flags and public station files. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Rule-based decoder baseline; zero invented flag meanings.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

043 Heatwave-definition sensitivity grid

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Health-relevant heat counts depend on chosen definitions.

Task Calculate one station's event counts under one explicit threshold definition.

Input GHCN-Daily maximum/minimum temperature series.

Check Reference implementation, missing-data tests and alternate baselines.

Limit Station coverage and urban exposure mismatch; no health warning service.

Status Proposed numerical sensitivity study. [28]

GET STARTED / COPY & PASTE

Help me start “Heatwave-definition sensitivity grid” as a beginner research exercise. Select one public station-year and write two explicit heatwave definitions with baseline periods and missing-day rules. Plan a count comparison and a small hand-check example; do not issue public-health guidance or real-time warnings.

Candidate input: GHCN-Daily maximum/minimum temperature series. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reference implementation, missing-data tests and alternate baselines.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

044 Rainfall missingness stress test

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Missing days can bias extreme-rainfall statistics.

Task Mask one complete time block and compare imputation methods.

Input GHCN-Daily precipitation records and flags.

Check Known withheld observations and extreme-tail preservation.

Limit Imputed extremes are uncertain; no flood forecasting or invented rain.

Status Proposed reconstruction-method benchmark. [28]

GET STARTED / COPY & PASTE

Help me start “Rainfall missingness stress test” as a beginner research exercise. Use a public rainfall segment with enough complete observations and mask one known block in a copy. Compare a simple baseline with one alternative, preserving withheld truth and checking errors on extreme rain separately.

Candidate input: GHCN-Daily precipitation records and flags. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known withheld observations and extreme-tail preservation.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

045 Air-monitor unit and cadence audit

LOCAL MODEL / ORIGINAL PROPOSAL

Mixed units and irregular sampling distort air-quality summaries.

Task Inspect one monitor-period for unit, cadence and missingness inconsistencies.

Input OpenAQ public platform; downloadable API/export authorization must be checked.

Check Deterministic conversions and manual sample; never impute safety assurances.

Limit API access, provider licenses and sensor quality; no personal exposure claims.

Status Proposed metadata audit, not a live air-quality donation queue. [27]

GET STARTED / COPY & PASTE

Help me start “Air-monitor unit and cadence audit” as a beginner research exercise. Select one public monitor-week and its official unit/time documentation. Draft a read-only audit of units, timezone, cadence and gaps using deterministic checks; never interpret a clean file as evidence that air is safe.

Candidate input: OpenAQ public platform; downloadable API/export authorization must be checked. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Deterministic conversions and manual sample; never impute safety assurances.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

046 Air-pollution gap-filling uncertainty

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

A smooth curve can conceal unreliable missing-data estimates.

Task Hold out one monitor-day and estimate values with uncertainty.

Input OpenAQ historical monitor series; access and benchmark subset unverified.

Check Time-blocked holdouts, neighbor leakage checks and interval coverage.

Limit Sparse stations and licensing; do not substitute for regulatory readings.

Status Proposed numerical calibration study. [27]

GET STARTED / COPY & PASTE

Help me start “Air-pollution gap-filling uncertainty” as a beginner research exercise. Choose a small permitted monitor dataset and hold out whole days rather than random rows. Plan a neighbor-based baseline, leakage checks and interval coverage; label estimates clearly and do not replace official safety measurements.

Candidate input: OpenAQ historical monitor series; access and benchmark subset unverified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Time-blocked holdouts, neighbor leakage checks and interval coverage.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

047 Reanalysis downsampling error atlas

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Coarse grids can hide local climate variability.

Task Compare one tile/period before and after spatial aggregation.

Input ERA5 single-level reanalysis documentation; data retrieval may require an account.

Check Conservation checks and withheld resolution; report representativeness error.

Limit Licensed download route and large files; no sign-in performed here.

Status Proposed numeric audit, conditional on approved data access. [29]

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Help me start “Reanalysis downsampling error atlas” as a beginner research exercise. Use one small public reanalysis tile for one short period. Specify area weights and units, compare original versus aggregated values, and include a conservation check before making any regional representativeness claim.

Candidate input: ERA5 single-level reanalysis documentation; data retrieval may require an account. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Conservation checks and withheld resolution; report representativeness error.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

048 Fire-detection persistence audit

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Satellite hotspots can be transient or repeatedly observed.

Task Group one region-day's detections into persistence summaries.

Input NASA FIRMS documented active-fire products; historical export needs checking.

Check Cross-sensor agreement and uncertainty from overpass timing.

Limit Hotspots are not verified burned area; no emergency response output.

Status Proposed retrospective research, not operational fire detection. [30]

GET STARTED / COPY & PASTE

Help me start “Fire-detection persistence audit” as a beginner research exercise. Select one region-day of public fire detections and available cross-sensor documentation. Plan persistence groups with timestamps and overpass gaps; distinguish satellite detection summaries from verified fire boundaries or emergency advice.

Candidate input: NASA FIRMS documented active-fire products; historical export needs checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Cross-sensor agreement and uncertainty from overpass timing.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

049 Carbon-trend method robustness lab

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Smoothing choices can change apparent short-term CO2 trends.

Task Fit one time window using specified seasonal/trend estimators.

Input NOAA GML published carbon-dioxide trend records.

Check Reference-series reproduction, bootstrap intervals and endpoint sensitivity.

Limit Short windows mislead; preserve official measurements and uncertainty.

Status Proposed public numerical replication rather than fresh measurements. [31]

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Help me start “Carbon-trend method robustness lab” as a beginner research exercise. Choose one published carbon-series segment and reproduce a documented seasonal/trend baseline. Plan a second estimator, endpoint sensitivity and appropriate resampling intervals; report method dependence rather than attributing a cause.

Candidate input: NOAA GML published carbon-dioxide trend records. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reference-series reproduction, bootstrap intervals and endpoint sensitivity.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 05 / ATMOSPHERE AND CLIMATE

050 Climate ensemble checkpoint donation

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Independent climate realizations can test uncertainty better than one run.

Task Run one authorized ensemble member or checkpoint interval.

Input climateprediction.net project-issued simulation tasks, when available.

Check Project scientific controls and ensemble consistency, not LLM plausibility.

Limit Long runtimes, disk and electricity; queue availability not tested.

Status Established BOINC-style climate computation, conditional on current tasks. [8] [1]

GET STARTED / COPY & PASTE

Help me start “Climate ensemble checkpoint donation” as a beginner research exercise. Find an established climate project's authorized volunteer or ensemble workflow. Draft a consent, resource-budget and checkpoint-validation checklist; if no permitted task is available, stop at a partner inquiry rather than running an invented climate model.

Candidate input: climateprediction.net project-issued simulation tasks, when available. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Project scientific controls and ensemble consistency, not LLM plausibility.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

051 Argo profile quality-control replay

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Automated checks can disagree with delayed expert quality flags.

Task Recheck one temperature/salinity profile without altering the archive.

Input Argo public profile data and documented quality-control system.

Check Compare delayed-mode flags and manually review disagreements.

Limit QC-version drift and pressure conventions; no silent replacement.

Status Proposed reproducibility audit of established ocean observations. [32]

GET STARTED / COPY & PASTE

Help me start “Argo profile quality-control replay” as a beginner research exercise. Pick three public Argo profiles with documented quality flags. Outline a read-only replay of published checks and a disagreement log against delayed-mode flags; preserve archive values and seek an oceanographer's review.

Candidate input: Argo public profile data and documented quality-control system. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Compare delayed-mode flags and manually review disagreements.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

052 Ocean heat-content integration sensitivity

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Interpolation choices affect integrated heat estimates.

Task Integrate one profile under a defined interpolation/depth convention.

Input Argo temperature profiles; reference climatology choice requires verification.

Check Analytic profiles, published-method replication and uncertainty propagation.

Limit Sparse deep coverage and density assumptions; no global estimate from small samples.

Status Proposed numerical sensitivity study. [32]

GET STARTED / COPY & PASTE

Help me start “Ocean heat-content integration sensitivity” as a beginner research exercise. Start with an analytic teaching profile whose integral is known, then one public ocean profile. Write down depth bounds, units and interpolation choices before integration; carry uncertainty and avoid presenting a small sample as global ocean heat content.

Candidate input: Argo temperature profiles; reference climatology choice requires verification. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Analytic profiles, published-method replication and uncertainty propagation.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

053 Mixed-layer depth definition comparison

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Different mixed-layer definitions produce inconsistent summaries of the same observed ocean profile.

Task Compute one profile's depth under several documented threshold methods.

Input Argo temperature/salinity profiles.

Check Known synthetic profiles and expert-reviewed seasonal contrasts.

Limit Definitions describe different physics; rankings need context.

Status Proposed decomposable method comparison. [32]

GET STARTED / COPY & PASTE

Help me start “Mixed-layer depth definition comparison” as a beginner research exercise. Choose two public profiles and a synthetic profile with an obvious mixed layer. Define two published threshold conventions, then plan depth comparisons with missing-value handling and an oceanographer-reviewed interpretation.

Candidate input: Argo temperature/salinity profiles. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known synthetic profiles and expert-reviewed seasonal contrasts.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

054 Surface-current interpolation sensitivity

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Coarse current grids can distort reconstructed transport pathways.

Task Advect one synthetic particle ensemble under alternative interpolation/time-step settings.

Input NASA PO.DAAC OSCAR final surface-current dataset documentation; data download may require Earthdata Login.

Check Analytic-flow controls, step-size convergence and coast-mask checks.

Limit Modeled surface flow is not a measured full-depth current; no navigation or spill forecasts.

Status Proposed offline numerical sensitivity study, not a new current observation network. [61]

GET STARTED / COPY & PASTE

Help me start “Surface-current interpolation sensitivity” as a beginner research exercise. Begin with an analytic flow and explicitly synthetic particles. Plan two timesteps and interpolation schemes with a convergence plot and coast-mask test before considering a small permitted current product; do not make navigation predictions.

Candidate input: NASA PO.DAAC OSCAR final surface-current dataset documentation; data download may require Earthdata Login. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Analytic-flow controls, step-size convergence and coast-mask checks.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

055 Marine occurrence taxonomy repair queue

LOCAL MODEL / ORIGINAL PROPOSAL

Name inconsistencies complicate biodiversity synthesis.

Task Flag one ambiguous taxon-name mapping with provenance.

Input OBIS marine occurrence records and documented quality-control resources.

Check Expert taxonomist approval and accepted-name identifier checks.

Limit Taxonomic revision and sensitive species; release only coarse locations.

Status Proposed curation suggestions over an established repository. [33]

GET STARTED / COPY & PASTE

Help me start “Marine occurrence taxonomy repair queue” as a beginner research exercise. Choose ten public occurrence-name strings and their cited taxonomic authorities. Build an original-name/accepted-ID/uncertain mapping table; flag homonyms and require taxonomist approval before changing any downstream record.

Candidate input: OBIS marine occurrence records and documented quality-control resources. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert taxonomist approval and accepted-name identifier checks.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

056 Marine sampling-effort bias cards

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Apparent species change can reflect changing observation effort.

Task Summarize one coarse region-period's record and dataset coverage.

Input OBIS occurrence collections; event/effort completeness must be checked.

Check Collection-stratified resampling and explicit missing-effort flags.

Limit Occurrences do not prove absence; protect vulnerable aggregations.

Status Proposed data-quality diagnostic, not abundance estimation. [33]

GET STARTED / COPY & PASTE

Help me start “Marine sampling-effort bias cards” as a beginner research exercise. Use public occurrence metadata from one coarse region and season, suppressing sensitive coordinates. Draft coverage summaries stratified by contributing dataset, noting where sampling effort is unknown; do not equate more records with more animals.

Candidate input: OBIS occurrence collections; event/effort completeness must be checked. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Collection-stratified resampling and explicit missing-effort flags.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

057 Coral annotation disagreement workshop

HUMAN REVIEW / ORIGINAL PROPOSAL

Coral-cover estimates depend on uncertain image-point labels.

Task Have volunteers adjudicate one disputed benthic image point.

Input CoralNet public-source collections; reuse permission and label export require checking.

Check Expert consensus, repeated points and inter-rater agreement.

Limit Not every source is public; protect precise reef locations.

Status Proposed human review extension of an existing annotation platform. [34]

GET STARTED / COPY & PASTE

Help me start “Coral annotation disagreement workshop” as a beginner research exercise. Prepare five permitted benthic-image points with expert labels and blind repeats. Draft a short volunteer annotation guide and disagreement form, retaining uncertain classes and expert arbitration rather than inventing coral-health diagnoses.

Candidate input: CoralNet public-source collections; reuse permission and label export require checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert consensus, repeated points and inter-rater agreement.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

058 Coral classifier drift watch

LOCAL MODEL / ORIGINAL PROPOSAL

Reef models may fail across cameras and regions.

Task Evaluate one pretrained vision model on one held-out source.

Input Permission-cleared CoralNet public images and annotations, subset unverified.

Check Cross-source accuracy, calibration and human-reviewed failure categories.

Limit Rights, domain shift and inference cost; no automatic ecological assessment.

Status Proposed local-model robustness benchmark. [34]

GET STARTED / COPY & PASTE

Help me start “Coral classifier drift watch” as a beginner research exercise. Choose two licensed coral-image sources and a permitted pretrained model. Keep one source completely held out and outline class accuracy, calibration and reviewed failure categories; check label compatibility before comparing results.

Candidate input: Permission-cleared CoralNet public images and annotations, subset unverified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Cross-source accuracy, calibration and human-reviewed failure categories.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

059 Whale-call candidate triage

LOCAL MODEL / ORIGINAL PROPOSAL

Long underwater recordings exceed expert listening capacity.

Task Score one short audio chunk for review-worthy call candidates.

Input NOAA NCEI passive-acoustic archive; labeled licensed subset requires selection.

Check Held-out expert detections and precision at fixed listening budget.

Limit Huge audio transfer; suppress exact vulnerable-species locations.

Status Proposed archival inference queue, not real-time tracking. [35]

GET STARTED / COPY & PASTE

Help me start “Whale-call candidate triage” as a beginner research exercise. Use a few licensed audio clips with expert whale-call annotations and no sensitive location disclosure. Plan a simple detection baseline and blind review queue with precision per listening minute; do not interpret candidates as confirmed population counts.

Candidate input: NOAA NCEI passive-acoustic archive; labeled licensed subset requires selection. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Held-out expert detections and precision at fixed listening budget.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 06 / OCEAN LIFE AND MOVING WATER

060 Ocean noise-band reproducibility mesh

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Different signal-processing choices alter noise summaries.

Task Compute one calibrated time block's frequency-band statistics.

Input NCEI passive-acoustic recordings and instrument metadata.

Check Known tones, unit checks and independent FFT implementation.

Limit Calibration may be missing; shipping and animal sounds are confounded.

Status Proposed numeric acoustic audit distinct from call detection. [35]

GET STARTED / COPY & PASTE

Help me start “Ocean noise-band reproducibility mesh” as a beginner research exercise. Find one permitted calibrated underwater-audio example and its unit documentation, plus a known synthetic tone. Plan frequency-band summaries with an independent FFT check; if calibration is absent, stop short of absolute sound-level claims.

Candidate input: NCEI passive-acoustic recordings and instrument metadata. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known tones, unit checks and independent FFT implementation.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

061 Camera-trap empty-frame filter

LOCAL MODEL / ORIGINAL PROPOSAL

Empty frames consume scarce wildlife reviewer attention.

Task Score one image batch and retain uncertain animal detections.

Input LILA Snapshot Serengeti images and labels.

Check Held-out locations; rare-animal false-negative rate versus baseline.

Limit People may appear; filter faces and coarsen wildlife locations.

Status Proposed efficiency benchmark using an existing labeled collection. [53]

GET STARTED / COPY & PASTE

Help me start “Camera-trap empty-frame filter” as a beginner research exercise. Select twenty licensed camera-trap frames from distinct locations with expert empty/animal labels. Plan a simple baseline and uncertainty-preserving threshold; explicitly count missed rare animals and protect species locations and incidental people.

Candidate input: LILA Snapshot Serengeti images and labels. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Held-out locations; rare-animal false-negative rate versus baseline.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

062 Wildlife count uncertainty benchmark

LOCAL MODEL / ORIGINAL PROPOSAL

Presence labels cannot substitute for animal counts.

Task Estimate one image's count with abstention on occlusion.

Input Snapshot Serengeti images and documented annotation resources.

Check Expert count intervals, crowding strata and calibration.

Limit Image count is not population abundance; exact locations protected.

Status Proposed count calibration, distinct from empty-frame filtering. [53]

GET STARTED / COPY & PASTE

Help me start “Wildlife count uncertainty benchmark” as a beginner research exercise. Choose ten licensed wildlife images spanning sparse and crowded scenes. Prepare expert count intervals, an occlusion/abstention rule and a calibration worksheet; avoid converting image counts into population estimates.

Candidate input: Snapshot Serengeti images and documented annotation resources. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert count intervals, crowding strata and calibration.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

063 Camera-trap sequence deduplication

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Near-duplicate frames can leak across train/test splits.

Task Group one timestamp/image neighborhood into duplicate clusters.

Input LILA camera-trap datasets; sequence timestamps must be verified.

Check Manual pair labels and cross-split leakage audit.

Limit Missing metadata; never merge merely similar individuals.

Status Proposed dataset-integrity service. [36]

GET STARTED / COPY & PASTE

Help me start “Camera-trap sequence deduplication” as a beginner research exercise. Use a small licensed camera-trap sequence with timestamps and privacy-sensitive content excluded. Plan duplicate grouping with a simple timestamp rule and manual pair labels, then ensure related frames cannot leak across evaluation splits.

Candidate input: LILA camera-trap datasets; sequence timestamps must be verified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Manual pair labels and cross-split leakage audit.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

064 Nocturnal image degradation challenge

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Infrared noise can produce confident wildlife errors.

Task Run one model on one measured degradation configuration.

Input LILA camera-trap collections with night-image subsets requiring selection.

Check Separate natural night holdouts; accuracy and uncertainty by condition.

Limit Synthetic corruptions may be unrealistic; cap repeated GPU inference.

Status Proposed robustness experiment using existing public collections. [36]

GET STARTED / COPY & PASTE

Help me start “Nocturnal image degradation challenge” as a beginner research exercise. Select permitted day/night wildlife examples and create clearly labeled degraded copies. Plan a small exposure/noise grid, holding out natural night images so synthetic degradation is not mistaken for real-world evidence.

Candidate input: LILA camera-trap collections with night-image subsets requiring selection. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Separate natural night holdouts; accuracy and uncertainty by condition.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

065 Rare-species abstention benchmark

LOCAL MODEL / ORIGINAL PROPOSAL

False rare-species labels can misdirect conservation attention.

Task Evaluate one confidence threshold on a held-out species/region split.

Input LILA species-labeled image collections.

Check Precision-recall, abstention coverage and taxonomist review.

Limit Class imbalance and location sensitivity; no public sightings feed.

Status Proposed open-set evaluation, not an identification authority. [36]

GET STARTED / COPY & PASTE

Help me start “Rare-species abstention benchmark” as a beginner research exercise. Choose a licensed wildlife benchmark with a species or region left out of training. Plan confidence thresholds, precision-recall and abstention coverage with a taxonomist review; suppress sensitive coordinates and do not claim reliable rare-species discovery.

Candidate input: LILA species-labeled image collections. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Precision-recall, abstention coverage and taxonomist review.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

066 Birdsong model disagreement queue

HYBRID / ORIGINAL PROPOSAL

Different audio models can disagree on difficult soundscapes.

Task Compare one audio clip's predictions and route disagreements to listeners.

Input BirdNET open-source tools; openly licensed expert-labeled audio subset is a candidate.

Check Blind expert labels and verified calls per listening minute.

Limit Dataset rights and human speech removal; avoid precise nesting locations.

Status Proposed reviewer triage inspired by actual BirdNET citizen science. [37]

GET STARTED / COPY & PASTE

Help me start “Birdsong model disagreement queue” as a beginner research exercise. Start with ten licensed birdsong clips and compatible permitted models. Make a model-disagreement listening queue with blind expert checks; track verified calls per minute and distinguish overlapping or unknown calls.

Candidate input: BirdNET open-source tools; openly licensed expert-labeled audio subset is a candidate. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blind expert labels and verified calls per listening minute.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

067 Conservation annotation training cards

HYBRID / ORIGINAL PROPOSAL

New volunteers need calibrated examples before difficult cases.

Task Prepare one short training card showing a verified visual distinction.

Input Snapshot Serengeti labeled images, subject to item rights.

Check Volunteer pre/post tests and independent expert review of every card.

Limit Models invent diagnostic traits; visible evidence must support explanations.

Status Proposed education study, not generic automated species labeling. [53] [11]

GET STARTED / COPY & PASTE

Help me start “Conservation annotation training cards” as a beginner research exercise. Pick one expert-verified visual distinction using licensed wildlife images. Draft a beginner training card and five pre/post questions, then request an independent specialist review before involving volunteers; do not reveal sensitive locations.

Candidate input: Snapshot Serengeti labeled images, subject to item rights. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Volunteer pre/post tests and independent expert review of every card.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

068 Biodiversity dataset license inventory

LOCAL MODEL / ORIGINAL PROPOSAL

Researchers lose time discovering unusable training data.

Task Extract one dataset's access, attribution and reuse conditions with quotes.

Input LILA dataset descriptions and linked licenses; each underlying license must be fetched.

Check Human rights review and exact-source entailment; unknown is allowed.

Limit Catalog summaries are not legal permission; no automatic ingestion.

Status Proposed provenance/rights assistant, not legal advice. [36]

GET STARTED / COPY & PASTE

Help me start “Biodiversity dataset license inventory” as a beginner research exercise. Choose five biodiversity datasets and inspect their actual license/access pages. Build a quote-backed inventory of attribution, redistribution, sensitive-data restrictions and unknowns; public visibility alone is not permission to reuse.

Candidate input: LILA dataset descriptions and linked licenses; each underlying license must be fetched. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Human rights review and exact-source entailment; unknown is allowed.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

069 Habitat background leakage test

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Models may identify locations rather than animals.

Task Compare one model's predictions with animal regions masked versus retained.

Input LILA camera-trap images with authorized site splits.

Check Site-held-out performance and controlled masks; expert sanity check.

Limit Accurate masks required; retain location identifiers privately or coarsen.

Status Proposed causal stress test for a known modeling risk. [36]

GET STARTED / COPY & PASTE

Help me start “Habitat background leakage test” as a beginner research exercise. Use licensed wildlife images with approved animal-region masks and site labels. Plan a controlled masked-versus-retained comparison with site-held-out evaluation, noting that masking artifacts can confound conclusions about background reliance.

Candidate input: LILA camera-trap images with authorized site splits. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Site-held-out performance and controlled masks; expert sanity check.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 07 / BIODIVERSITY AND CONSERVATION

070 Wetland wildlife seasonal coverage atlas

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Seasonal gaps can masquerade as ecological change.

Task Aggregate one coarse site-season's sampling coverage and label completeness.

Input LILA catalog's wetland camera datasets; timestamp availability requires checking.

Check Reconcile image totals, missing timestamps and sampling intervals.

Limit No abundance claims from effort alone; protect site coordinates.

Status Proposed coverage diagnostic using a documented dataset family. [36]

GET STARTED / COPY & PASTE

Help me start “Wetland wildlife seasonal coverage atlas” as a beginner research exercise. Take one permitted wetland camera dataset and aggregate timestamps to coarse site-seasons. Reconcile image totals, missing dates and label coverage without exposing sensitive sites; do not confuse seasonal camera effort with wildlife abundance.

Candidate input: LILA catalog's wetland camera datasets; timestamp availability requires checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reconcile image totals, missing timestamps and sampling intervals.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

071 Solar resource seasonal bias audit

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Annual averages can hide seasonal solar-resource uncertainty.

Task Compare one location-year's seasonal summaries under explicit aggregation rules.

Input NASA POWER solar and meteorological datasets.

Check Reference calculations, missing-data checks and unit consistency.

Limit Satellite/model resource is not measured rooftop output; no investment advice.

Status Proposed numerical quality audit of an established data service. [38]

GET STARTED / COPY & PASTE

Help me start “Solar resource seasonal bias audit” as a beginner research exercise. Choose one public solar-resource location-year with documented units and time basis. Write explicit seasonal aggregation and missing-hour rules, then compare with a reference calculation rather than implying a project-specific energy forecast.

Candidate input: NASA POWER solar and meteorological datasets. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reference calculations, missing-data checks and unit consistency.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

072 Solar-data parameter translator

LOCAL MODEL / ORIGINAL PROPOSAL

Ambiguous variable names cause incorrect renewable-energy analyses.

Task Map one analyst request to documented variables, units and time basis.

Input NASA POWER documentation and parameter dictionary links.

Check Expert gold mappings; reject unsupported variables and invented conversions.

Limit Documentation lookup may beat an LLM; measure analyst time saved.

Status Proposed constrained semantic interface, not a solar simulator. [38]

GET STARTED / COPY & PASTE

Help me start “Solar-data parameter translator” as a beginner research exercise. Write five beginner solar-analysis requests and map each to exact documented variables, units and timezone conventions. Include an unsupported request that must be rejected and have a solar analyst check the mapping before code generation.

Candidate input: NASA POWER documentation and parameter dictionary links. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert gold mappings; reject unsupported variables and invented conversions.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

073 Grid load calendar anomaly scout

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Time-zone and daylight-saving errors distort demand research.

Task Check one country-year for timestamp duplication, gaps and calendar shifts.

Input Open Power System Data time-series packages.

Check Known calendar transitions, package schema and independent parsing.

Limit Historical release age and country conventions; no live grid access.

Status Proposed data-integrity audit on existing open packages. [39]

GET STARTED / COPY & PASTE

Help me start “Grid load calendar anomaly scout” as a beginner research exercise. Use one public country-year load series and a documented calendar. Draft checks for duplicated hours, gaps and daylight-saving transitions; retain original timestamps and avoid filling operational grid data by guesswork.

Candidate input: Open Power System Data time-series packages. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Known calendar transitions, package schema and independent parsing.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

074 Heating-demand assumption cards

LOCAL MODEL / ORIGINAL PROPOSAL

Energy scenarios often bury weather-to-demand assumptions.

Task Extract one scenario's temperatures, units and conversion assumptions with citations.

Input OPSD When2Heat and weather package documentation.

Check Source-span agreement and energy-modeler review.

Limit Parameters may not transfer geographically; no household data or advice.

Status Proposed documentation aid, not inferred consumption measurements. [39]

GET STARTED / COPY & PASTE

Help me start “Heating-demand assumption cards” as a beginner research exercise. Choose one open heating-demand scenario and extract quoted assumptions about temperatures, units and conversions. Make an assumptions card with unknowns and a dimensional check, then request an energy modeler's review rather than recommending building changes.

Candidate input: OPSD When2Heat and weather package documentation. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Source-span agreement and energy-modeler review.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

075 Grid-model constraint explanation bench

LOCAL MODEL / ORIGINAL PROPOSAL

Model users can misunderstand constraints despite valid solver output.

Task Explain one constraint in words and map it to variables and units.

Input PyPSA public documentation and small published examples.

Check Power engineer rubric plus symbolic/dimensional checks.

Limit Explanations can conceal wrong math; never control infrastructure.

Status Proposed local-model teaching/review benchmark. [40]

GET STARTED / COPY & PASTE

Help me start “Grid-model constraint explanation bench” as a beginner research exercise. Choose one constraint from a small open grid-model tutorial. Draft a plain-language explanation linked to exact variables and units, include a symbolic/dimensional check, and prepare a power-engineer rubric without implying operational advice.

Candidate input: PyPSA public documentation and small published examples. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Power engineer rubric plus symbolic/dimensional checks.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

076 Renewable dispatch replication grid

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Optimization results need reproducibility across solver settings.

Task Solve one small scenario with a pinned solver/configuration.

Input PyPSA public example networks and OPSD time series.

Check Feasibility residuals, objective tolerance and independent reruns.

Limit Solver licensing, CPU time and model assumptions; no operational dispatch.

Status Proposed volunteer numerical replication. [40] [39]

GET STARTED / COPY & PASTE

Help me start “Renewable dispatch replication grid” as a beginner research exercise. Find a licensed tiny dispatch example with a documented baseline solver. Pin inputs, solver and limits; draft a reproduction notebook with feasibility residuals and objective tolerance before attempting any distributed solve or live-grid connection.

Candidate input: PyPSA public example networks and OPSD time series. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Feasibility residuals, objective tolerance and independent reruns.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

077 Battery-material provenance filter

LOCAL MODEL / ORIGINAL PROPOSAL

Screening studies need clear separation of measured and computed properties.

Task Summarize one material property's method, units and provenance.

Input Materials Project documentation and public data-access routes; subset authorization unverified.

Check Curator checks against original records; abstain on missing methods.

Limit API credentials may be required; no synthesis or safety recommendations.

Status Proposed provenance tool, not discovery of a better battery. [41]

GET STARTED / COPY & PASTE

Help me start “Battery-material provenance filter” as a beginner research exercise. Select five public battery-material property records with explicit licenses and methods. Build provenance cards preserving units, measurement/computation distinctions and missing methods; do not propose synthesis, cell construction or safety testing.

Candidate input: Materials Project documentation and public data-access routes; subset authorization unverified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Curator checks against original records; abstain on missing methods.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

078 Materials-model domain-shift audit

LOCAL MODEL / ORIGINAL PROPOSAL

Prediction scores can hide failure on unfamiliar chemistries.

Task Evaluate one permitted pretrained property model on a held-out composition family.

Input Materials Project public datasets; licensed property/structure export needs checking.

Check Family-disjoint splits, uncertainty calibration and numerical baseline.

Limit Data leakage, model license and access; no hazardous-material design.

Status Proposed robustness benchmark, not chemistry generation. [41]

GET STARTED / COPY & PASTE

Help me start “Materials-model domain-shift audit” as a beginner research exercise. Find a permitted pretrained material-property model and a compatible licensed benchmark. Plan one composition-family holdout against a numeric baseline, checking domain and uncertainty limits; do not turn predicted properties into manufacturing instructions.

Candidate input: Materials Project public datasets; licensed property/structure export needs checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Family-disjoint splits, uncertainty calibration and numerical baseline.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

079 Energy-scenario claim verifier

LOCAL MODEL / ORIGINAL PROPOSAL

Narrative reports may misstate their own model tables.

Task Check one written claim against a linked numeric table and assumptions.

Input Public PyPSA example outputs generated by authorized researchers, candidate files not retrieved.

Check Exact arithmetic checks and expert entailment labels.

Limit No actual scenario output fetched; avoid turning scenarios into forecasts.

Status Conditional proposal for grounded reporting validation. [40]

GET STARTED / COPY & PASTE

Help me start “Energy-scenario claim verifier” as a beginner research exercise. Pick three claims from an open energy-scenario report and their linked numeric tables. Plan exact arithmetic, units and assumption checks with supported/unsupported/unclear labels; separate scenario assumptions from observed outcomes.

Candidate input: Public PyPSA example outputs generated by authorized researchers, candidate files not retrieved. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Exact arithmetic checks and expert entailment labels.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 08 / RENEWABLE ENERGY AND RESILIENT GRIDS

080 Grid benchmark simplification audit

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Reduced networks can lose scientifically important constraints.

Task Compare one reduced network against its full small-model reference.

Input PyPSA public example networks.

Check Power balance, congestion patterns and objective-error limits.

Limit Network reduction changes assumptions; entirely offline research.

Status Proposed numerical approximation study. [40]

GET STARTED / COPY & PASTE

Help me start “Grid benchmark simplification audit” as a beginner research exercise. Use a licensed small grid benchmark and one documented reduced version. Plan a paired offline solve checking balance, congestion and objective error with fixed tolerances; never connect the experiment to grid controls or operating decisions.

Candidate input: PyPSA public example networks. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Power balance, congestion patterns and objective-error limits.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

081 Map accessibility-tag completeness review

LOCAL MODEL / ORIGINAL PROPOSAL

Public maps can omit structured accessibility information.

Task Flag one mapped amenity's missing accessibility fields without guessing values.

Input OpenStreetMap openly licensed data; bounded extract not yet downloaded.

Check Rule-based completeness baseline and local-mapper adjudication.

Limit Missing tags do not imply inaccessible places; no automatic edits.

Status Proposed read-only mapper queue respecting ODbL requirements. [44]

GET STARTED / COPY & PASTE

Help me start “Map accessibility-tag completeness review” as a beginner research exercise. Choose five mapped public amenities and the relevant accessibility-tag documentation. Build a completeness-only worksheet preserving unknowns; draft questions for local mappers instead of guessing accessibility or editing live map records.

Candidate input: OpenStreetMap openly licensed data; bounded extract not yet downloaded. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Rule-based completeness baseline and local-mapper adjudication.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

082 Humanitarian route-topology linting

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Disconnected mapped roads can disrupt research routing.

Task Check one bounded graph tile for suspicious dangling or crossing edges.

Input OpenStreetMap public road graph under its license.

Check Synthetic graph defects and local mapper validation.

Limit Some dead ends are real; no emergency-navigation guarantee.

Status Proposed diagnostic using an actual humanitarian mapping ecosystem. [44] [45]

GET STARTED / COPY & PASTE

Help me start “Humanitarian route-topology linting” as a beginner research exercise. Use a permitted small offline road-graph extract and inject a few clearly synthetic dangling-edge defects in a copy. Plan a topology linter and local-mapper review sheet; do not offer navigation or emergency-routing assurances.

Candidate input: OpenStreetMap public road graph under its license. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Synthetic graph defects and local mapper validation.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

083 Building-map disagreement adjudication

HYBRID / ORIGINAL PROPOSAL

Automated outlines need scrutiny before mapping use.

Task Compare one model footprint to visible imagery and existing map geometry.

Input HOT public tools and OpenAerialMap imagery; exact licensed imagery subset requires checking.

Check Expert-reviewed polygons, overlap metrics and local mapper review.

Limit Imagery rights, vulnerable settlements and outdated imagery; no edits.

Status Proposed review workflow; HOT already lists AI-related tools. [45] [44]

GET STARTED / COPY & PASTE

Help me start “Building-map disagreement adjudication” as a beginner research exercise. Choose one small area with imagery explicitly licensed for this mapping use. Prepare a disagreement overlay between permitted building footprints and existing geometry, with uncertain cases for local review; make no live edits or inferences about occupants.

Candidate input: HOT public tools and OpenAerialMap imagery; exact licensed imagery subset requires checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert-reviewed polygons, overlap metrics and local mapper review.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

084 Public-domain OCR error restoration

HYBRID / ORIGINAL PROPOSAL

Historical text errors obstruct search and accessibility.

Task Propose corrections for one paragraph while preserving the original.

Input Project Gutenberg texts with item-level rights; paired scan source still a candidate.

Check Human scan comparison; character error rate and false-correction rate.

Limit Scan access and jurisdictional copyright; never silently rewrite history.

Status Conditional OCR research, not blanket permission for every book. [46]

GET STARTED / COPY & PASTE

Help me start “Public-domain OCR error restoration” as a beginner research exercise. Select one verified public-domain scanned page with its original image. Draft a paragraph-level OCR correction workflow that preserves the raw transcript and marks uncertain characters; compare corrections against the scan rather than inventing missing text.

Candidate input: Project Gutenberg texts with item-level rights; paired scan source still a candidate. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Human scan comparison; character error rate and false-correction rate.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

085 Scientific glossary translation fidelity

HYBRID / ORIGINAL PROPOSAL

Machine translations may change technical meanings.

Task Translate one short technical definition with term alignment.

Input Public GWOSC/PyPSA documentation; reuse license and target-language gold set require checking.

Check Bilingual domain experts score meaning and unit preservation.

Limit Licensing and expert review dominate; no publication in this task.

Status Proposed multilingual accessibility experiment. [20] [40]

GET STARTED / COPY & PASTE

Help me start “Scientific glossary translation fidelity” as a beginner research exercise. Choose one openly licensed technical definition and a target language. Plan aligned source/translation terms, numbers and units plus a glossary; require bilingual domain review and mark phrases without a secure equivalent.

Candidate input: Public GWOSC/PyPSA documentation; reuse license and target-language gold set require checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Bilingual domain experts score meaning and unit preservation.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

086 Citation-graph broken-link census

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Metadata links can fail or disagree with identifiers.

Task Resolve one bounded batch of DOI/identifier links with rate limits.

Input Crossref public DOI metadata and OpenAlex research index.

Check HTTP outcome logs, duplicate suppression and sampled manual checks.

Limit Rate limits and metadata freshness; broken link is not a retraction.

Status Proposed public metadata reliability audit. [43] [42]

GET STARTED / COPY & PASTE

Help me start “Citation-graph broken-link census” as a beginner research exercise. Start with ten public DOI links and the resolver's published usage rules. Draft a rate-limited checker distinguishing temporary errors, redirects and genuinely unresolved IDs; preserve dated logs and avoid treating one failed request as permanent breakage.

Candidate input: Crossref public DOI metadata and OpenAlex research index. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: HTTP outcome logs, duplicate suppression and sampled manual checks.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

087 Scientific abstract claim-span benchmark

LOCAL MODEL / ORIGINAL PROPOSAL

Models can produce plausible summaries unsupported by source text.

Task Align one short generated claim to exact supporting source spans.

Input OpenAlex/Crossref metadata; reusable abstract availability and rights require checking.

Check Blinded entailment labels; unsupported-claim and abstention rates.

Limit Metadata may lack abstracts; stop rather than fabricate text.

Status Conditional grounded-summarization benchmark. [42] [43]

GET STARTED / COPY & PASTE

Help me start “Scientific abstract claim-span benchmark” as a beginner research exercise. Use one openly licensed scientific abstract and write three modest candidate claims, including one unsupported claim. Plan exact span alignment and blinded entailment labels with an abstain option; make no claim stronger than the source.

Candidate input: OpenAlex/Crossref metadata; reusable abstract availability and rights require checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blinded entailment labels; unsupported-claim and abstention rates.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

088 Data-availability statement parser

LOCAL MODEL / ORIGINAL PROPOSAL

Readers struggle to locate data underlying papers.

Task Extract one data-availability statement into access conditions and identifiers.

Input Publisher-linked openly licensed articles from Crossref; full-text corpus not yet verified.

Check Manual statement gold set and URL verification; distinguish request-only data.

Limit Public metadata does not grant full-text rights; corpus access is prerequisite.

Status Conditional evidence-structure proposal, not verified full-text processing. [43]

GET STARTED / COPY & PASTE

Help me start “Data-availability statement parser” as a beginner research exercise. Select five openly licensed data-availability statements and quote access conditions verbatim. Build a table of identifiers, public/request-only/restricted/unknown status and dated URL checks; do not attempt access-control workarounds.

Candidate input: Publisher-linked openly licensed articles from Crossref; full-text corpus not yet verified. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Manual statement gold set and URL verification; distinguish request-only data.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

089 Citizen-science instruction ambiguity test

HYBRID / ORIGINAL PROPOSAL

Confusing instructions degrade volunteer contributions.

Task Generate contrastive interpretations of one instruction for human testing.

Input Zooniverse public project instructions; licensed text subset requires confirmation.

Check Controlled volunteer comprehension study with expert-approved examples.

Limit Consent for future studies and training time; no unsolicited participant contact.

Status Proposed instruction-quality research, not bot participation. [11]

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Help me start “Citizen-science instruction ambiguity test” as a beginner research exercise. Choose one licensed citizen-science instruction and draft two plausible interpretations plus clarifying wording. Prepare a small opt-in comprehension exercise for project-owner approval, with consent and minimal data collection before recruiting anyone.

Candidate input: Zooniverse public project instructions; licensed text subset requires confirmation. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Controlled volunteer comprehension study with expert-approved examples.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 09 / PUBLIC KNOWLEDGE AND HUMANITARIAN INFRASTRUCTURE

090 Science-plot accessible description audit

HYBRID / ORIGINAL PROPOSAL

Plot captions may omit axes, uncertainty or caveats.

Task Draft one chart description grounded in axes and source data.

Input NOAA GML public trend plots and accompanying descriptions.

Check Blind accessibility review and checks of signs, units and intervals.

Limit Visual hallucinations and chart rights; text must preserve uncertainty.

Status Proposed model-assisted accessibility benchmark. [31]

GET STARTED / COPY & PASTE

Help me start “Science-plot accessible description audit” as a beginner research exercise. Pick one openly licensed chart with accessible source data. Draft a description covering axes, units, directions and intervals, then check each numeric statement against the data; prepare an accessibility-review checklist rather than guessing hidden values.

Candidate input: NOAA GML public trend plots and accompanying descriptions. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Blind accessibility review and checks of signs, units and intervals.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

091 Scientific abstention challenge set

LOCAL MODEL / ORIGINAL PROPOSAL

Models often answer questions the evidence cannot settle.

Task Answer one deliberately answerable or unanswerable question with cited spans.

Input Public PDB, GWOSC and NOAA documentation excerpts.

Check Expert answerability labels, unsupported claims and calibrated refusal rates.

Limit Benchmark leakage and annotation cost; no leaderboard gaming.

Status Proposed cross-domain evidence benchmark, not scientific discovery. [19] [20] [31]

GET STARTED / COPY & PASTE

Help me start “Scientific abstention challenge set” as a beginner research exercise. Use a short openly licensed scientific passage to write five answerable and five deliberately unanswerable questions. Keep a separate expert-checkable answer key and source spans; score unsupported answers and appropriate abstentions, not fluency.

Candidate input: Public PDB, GWOSC and NOAA documentation excerpts. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Expert answerability labels, unsupported claims and calibrated refusal rates.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

092 Numerical result explanation cross-check

LOCAL MODEL / ORIGINAL PROPOSAL

A correct-looking explanation can contradict computed results.

Task Explain one fixed result and identify its units, assumptions and uncertainty.

Input PyPSA tutorials and GWOSC worked examples.

Check Reference values, dimensional checks and blinded expert grading.

Limit Must separate calculation from prose; no executing model code on volunteers.

Status Proposed explanation-quality benchmark distinct from solver replication. [40] [20]

GET STARTED / COPY & PASTE

Help me start “Numerical result explanation cross-check” as a beginner research exercise. Choose one published teaching calculation with a known reference value. Draft an explanation of units, assumptions and uncertainty, independently recompute it, and prepare a blinded expert checklist; do not infer new experimental findings.

Candidate input: PyPSA tutorials and GWOSC worked examples. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Reference values, dimensional checks and blinded expert grading.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

093 Small-model energy-per-accepted-record trial

LOCAL MODEL / ORIGINAL PROPOSAL

Large models may waste energy on simple curation tasks.

Task Process one fixed labeled batch with a permitted local model configuration.

Input The public registry and archive inputs of ideas 1, 42 and 55.

Check Accepted records per incremental Wh and reviewer minute versus rules.

Limit Power measurement and model-license checks; throughput alone is not benefit.

Status Proposed comparative evaluation, not claimed energy savings. [51] [28] [33]

GET STARTED / COPY & PASTE

Help me start “Small-model energy-per-accepted-record trial” as a beginner research exercise. Choose ten licensed labeled records and a permitted local model, plus a rules-only baseline. Plan a capped measurement run logging accepted records, idle-subtracted energy and reviewer minutes; if energy cannot be measured, report that limit rather than estimate a result.

Candidate input: The public registry and archive inputs of ideas 1, 42 and 55. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Accepted records per incremental Wh and reviewer minute versus rules.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

094 Volunteer-result corruption challenge

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

A donation network must reject fabricated outputs.

Task Submit deliberately perturbed results to an offline test validator, never a live project.

Input BOINC-style task design and public BBBC005 reference inputs.

Check Measure detection, honest rejection and replication overhead on seeded faults.

Limit Attack model completeness; no adversarial traffic to real services.

Status Proposed local validator stress test, not a deployed trusted network. [1] [54]

GET STARTED / COPY & PASTE

Help me start “Volunteer-result corruption challenge” as a beginner research exercise. Build a tiny offline validator fixture with clearly synthetic correct results and seeded rounding, missing-field and checksum faults. Plan detection and false-rejection checks; never send corrupt submissions to a real volunteer project or other people's systems.

Candidate input: BOINC-style task design and public BBBC005 reference inputs. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Measure detection, honest rejection and replication overhead on seeded faults.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

095 Scientific-document prompt-injection benchmark

LOCAL MODEL / ORIGINAL PROPOSAL

Public text can instruct an AI worker to ignore its task.

Task Extract one fixed field while treating all document instructions as untrusted data.

Input Public documentation excerpts and locally authored benign adversarial strings.

Check Canary instruction rejection, schema adherence and clean-task accuracy.

Limit Synthetic attacks miss real threats; no secrets or external actions exposed.

Status Proposed offline safety benchmark for donation workers. [40] [12]

GET STARTED / COPY & PASTE

Help me start “Scientific-document prompt-injection benchmark” as a beginner research exercise. Create a local toy scientific document containing harmless canary text and an instruction to ignore the extraction task. Plan a fixed-field extractor that treats document instructions as data; test clean accuracy and rejection without real secrets, network actions or third-party targets.

Candidate input: Public documentation excerpts and locally authored benign adversarial strings. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Canary instruction rejection, schema adherence and clean-task accuracy.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

096 Internet-sharded inference suitability study

NUMERICAL COMPUTE / ORIGINAL PROPOSAL

Layer-sharded models may spend more time communicating than computing.

Task Replay one measured or simulated latency/bandwidth trace on a bounded local test.

Input Petals and Hivemind public software documentation; public text fixtures.

Check Compare accepted-task throughput against complete local-model execution.

Limit Actual Internet peers untested; no network participation authorized here.

Status Proposed benchmark; Petals/Hivemind are real research software, not science queues. [12] [13]

GET STARTED / COPY & PASTE

Help me start “Internet-sharded inference suitability study” as a beginner research exercise. Use a local simulator with a documented measured trace or clearly labeled synthetic latency/bandwidth trace. Plan a small independent-task replay against complete local-model execution, including transfer and failure overhead; do not deploy to public machines.

Candidate input: Petals and Hivemind public software documentation; public text fixtures. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Compare accepted-task throughput against complete local-model execution.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

097 Mixed-hardware numerical drift census

LOCAL MODEL / ORIGINAL PROPOSAL

Different GPUs and quantizations can change scientific model outputs.

Task Evaluate one fixed image batch under one hardware/precision configuration.

Input Zoobot public weights/documentation and licensed image subset requiring checking.

Check Prediction disagreement, calibration and task-level tolerance checks.

Limit Hardware access and GPU memory variation; do not require bitwise identity.

Status Proposed cross-device inference audit, not verified universal compatibility. [49] [14]

GET STARTED / COPY & PASTE

Help me start “Mixed-hardware numerical drift census” as a beginner research exercise. Choose one fixed licensed image batch and permitted model. Plan repeated runs on hardware you own or are authorized to use, recording precision, seeds and versions; evaluate prediction differences against task tolerances rather than assuming bitwise equality.

Candidate input: Zoobot public weights/documentation and licensed image subset requiring checking. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Prediction disagreement, calibration and task-level tolerance checks.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

098 Scientific unit-extraction adversary set

LOCAL MODEL / ORIGINAL PROPOSAL

Unit errors can survive fluent scientific summaries.

Task Extract one numeric field with unit and provenance, including ambiguous cases.

Input NASA POWER, PDB and GHCN documentation.

Check Exact-field gold set, dimensional constraints and explicit abstention.

Limit Context-dependent units and test leakage; numeric conversions use code.

Status Proposed narrow model benchmark with transparent reference answers. [38] [19] [28]

GET STARTED / COPY & PASTE

Help me start “Scientific unit-extraction adversary set” as a beginner research exercise. Write ten small source-attributed numeric examples spanning compatible, incompatible and ambiguous units. Keep a separate exact-field gold set and dimensional checks; require abstention when the source cannot support a conversion.

Candidate input: NASA POWER, PDB and GHCN documentation. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Exact-field gold set, dimensional constraints and explicit abstention.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

099 Model-card scientific reproducibility curator

LOCAL MODEL / ORIGINAL PROPOSAL

Scientific models are hard to reuse when prerequisites are scattered.

Task Build one cited checklist of weights, input format, license and evaluation caveats.

Input BirdNET and Zoobot public documentation and model links.

Check Maintainer-style manual review; mark absent facts unknown rather than infer.

Limit License versions and absent training detail; no invented model guarantees.

Status Proposed curation service over existing scientific AI tools. [37] [49]

GET STARTED / COPY & PASTE

Help me start “Model-card scientific reproducibility curator” as a beginner research exercise. Choose one public scientific model card and its actual weight/license pages. Draft a cited checklist of input format, availability, permitted use, evaluations and missing facts; do not infer reproducibility from a downloadable file alone.

Candidate input: BirdNET and Zoobot public documentation and model links. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Maintainer-style manual review; mark absent facts unknown rather than infer.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

FIELD 10 / MAKING VOLUNTEER SCIENCE TRUSTWORTHY

100 Volunteer science error adjudication commons

HUMAN REVIEW / ORIGINAL PROPOSAL

Independent workers can agree on the same wrong answer.

Task Have trained reviewers adjudicate one conflicting result with a recorded rationale.

Input BBBC005 ground truth plus public GWOSC tutorial reference tasks.

Check Hidden gold tasks, inter-rater agreement and expert appeals.

Limit Reviewer fatigue and correlated errors; avoid reputation incentives tied to volume.

Status Proposed human validation layer; not token donation or DeSci funding. [54] [20] [1]

GET STARTED / COPY & PASTE

Help me start “Volunteer science error adjudication commons” as a beginner research exercise. Prepare five non-sensitive, licensed or explicitly synthetic conflicting-result cases. Draft an adjudication form with evidence, rationale, hidden gold checks and expert appeal, then outline an opt-in reviewer test plan without recruiting or publishing scores yet.

Candidate input: BBBC005 ground truth plus public GWOSC tutorial reference tasks. First verify access, license, attribution and data suitability; if unavailable, list the blocker, not invented data. Build the validation plan around: Hidden gold tasks, inter-rater agreement and expert appeals.

Return a small, resource-capped first-session plan, a worksheet/schema and a qualified-review checkpoint. Cite source URLs; distinguish planned steps from executed results. Use no confidential employer material, personal records or unsupported scientific/medical claims.

Follow the evidence.

Citations identify inputs, documentation or enabling analogs, not proof of feasibility. Some candidate datasets remain unverified, as stated in the entries. Retrieval does not establish data licensing, live tasks or partner endorsement.

Sources were retrieved November 15 and 16, 2026.

The 100 prompts are new editorial starting aids, not tested protocols or scientific results.

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