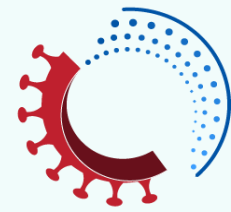




ARIA



CAiMIRA
CERN Airborne Model for
Indoor Risk Assessment

NeutrinoReview: CONCEPT PROPOSAL FOR AN OPEN SOURCE REVIEW MANAGEMENT TOOL

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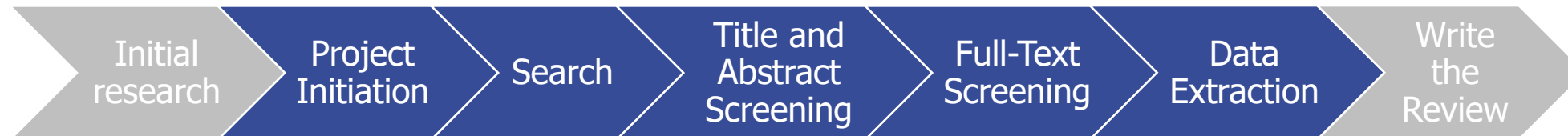
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Systematic Review

A Systematic Review provides the most reliable evidence to address a research question[1].

| | Time measure from/to | Time in Rounded Months | | | |
|----------------------------------|---|------------------------|-----|--------|---------|
| | | Min | Max | Median | Average |
| Beller et al. (2013)[2] | Last search / publication | 0 | 44 | 5 | N/A |
| Demetres et al. (2023)[3] | Requesting librarian support / submission | 1 | 31 | N/A | 10 |
| Borah et al. (2017)[4] | Registration / publication | 1 | 43 | 15 | 16 |

Systematic Review Process:



[1] K. Coleman, S. Norris, A. Weston, K. Grimmer-Somers, S. Hillier, T. Merlin, P. Middleton, R. Tooper, and J. Salisbury, "NHMRC Additional Levels of Evidence and Grades for Recommendations for Developers of Guidelines," National Health and Medical Research Council (NHMRC), Canberra, 2009.

[2] E. M. Beller, J. K.-H. Chen, U. L.-H. Wang, and P. P. Glasziou, "Are systematic reviews up-to-date at the time of publication?," *Systematic Reviews*, vol. 2, no. 1, pp. 1-6, 2013.

[3] M. R. Demetres, D. N. Wright, A. Hickner, C. Jedlicka, and D. Delgado, "A decade of systematic reviews: an assessment of Weill Cornell Medicine's systematic review service," *Journal of the Medical Library Association: JMLA*, vol. 111, no. 3, p. 728, 2023, Medical Library Association

[4] R. Borah, A. W. Brown, P. L. Capers, and K. A. Kaiser, "Analysis of the time and workers needed to conduct systematic reviews of medical interventions using data from the PROSPERO registry," *BMJ Open*, vol. 7, no. 2, p. e012545, 2017, British Medical Journal Publishing Group.

Project Proposal

Manual Process

- Write Project Proposal
 - Research Question
 - Search Strategy
 - Eligibility Criteria
 - ...

NeutrinoReview

- UI input mask
 - Adoptable to considered domain
- Export for PROSPERO[5] registration

[5] J. H. Schiavo, "PROSPERO: an international register of systematic review protocols", Medical Reference Services Quarterly, vol. 38, no. 2, pp. 171-180, 2019, Taylor & Francis.

Search String Creation

Current Process

- Iterative process
- Support by librarian or information manager

NeutrinoReview

- Guided procedure supported by generative AI
- Keywords suggestion, refinement, syntax correction

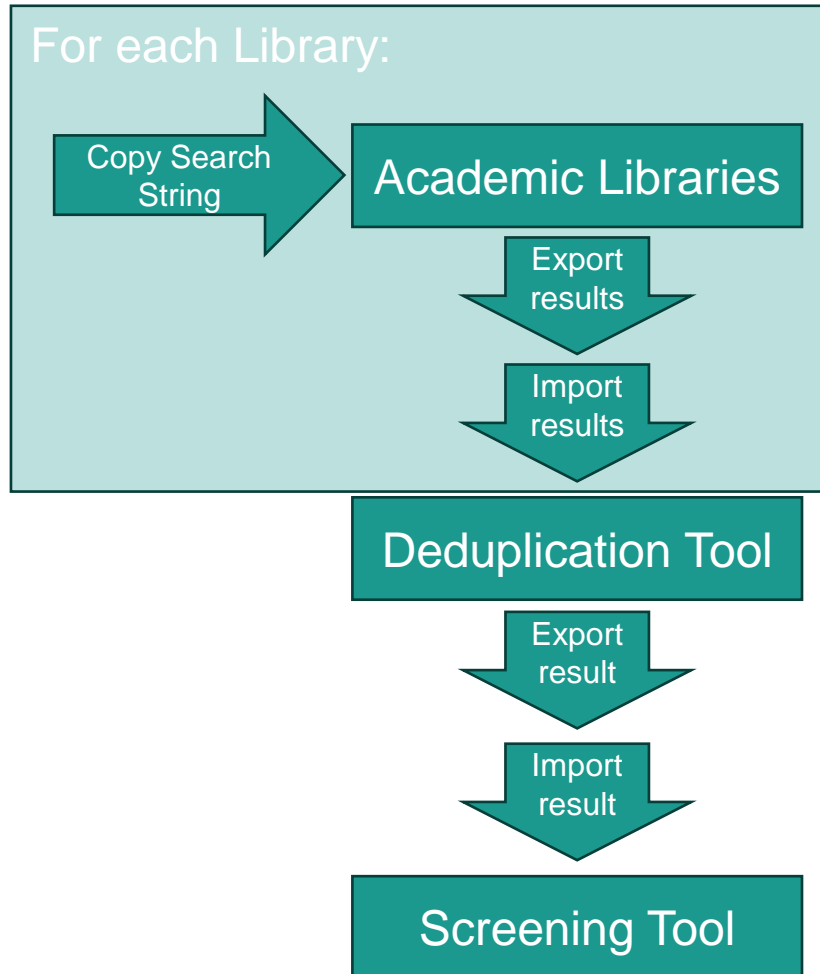
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AND

(Title:("identify-literature" OR "literature-screening" OR "literature-selection" OR "study-selection" OR "select-literature" OR "screening-title" OR "screening-titles" OR "title-screening" OR "abstract-screening" OR "screen-title" OR "screen-titles" OR "literature-filtration" OR "title-abstract" OR "screen-article" OR "screen-articles" OR "Title-and-abstract" OR "Title-and-abstracts" OR ((screening OR screen*) AND (review* OR "meta-analysis" OR "meta-analyses" OR "evidence-synthesis" OR "evidence-syntheses")) OR ((selection) AND (research-evidence))) OR Abstract:("identify-literature" OR "literature-screening" OR "literature-selection" OR "study-selection" OR "select-literature" OR "screening-title" OR "screening-titles" OR "title-screening" OR "abstract-screening" OR "screen-title" OR "screen-titles" OR "literature-filtration" OR "title-abstract" OR "screen-article" OR "screen-articles" OR "Title-and-abstract" OR "Title-and-abstracts" OR ((screening OR screen*) AND (review* OR "meta-analysis" OR "meta-analyses" OR "evidence-synthesis" OR "evidence-syntheses")) OR ((selection) AND (research-evidence))))

AND (SRC:PPR)

Data Retrieval



NeutrinoReview

- **One single click**
- Limited to academic libraries providing public API
- First prototype: PubMed¹, Medline², Europe PMC³

¹ <https://pubmed.ncbi.nlm.nih.gov>

² <https://www.medline.com>

³ <https://europepmc.org/>

Literature Screening

Manual Process

- Title and Abstract Screening
- Full-text Retrieval
- Full-text Screening

Requirement for Automation

- Cochrane Sensitivity Standard: >99%[6]

NeutrinoReview

- **Prefiltration with foundational LLM**
- Title and Abstract Screening
- **Automated full-text Retrieval**
- Full-text Screening

[6] J. Thomas, S. McDonald, A. Noel-Storr, I. Shemilt, J. Elliott, C. Mavergames, I. J. Marshall, "Machine learning reduced workload with minimal risk of missing studies: development and evaluation of a randomized controlled trial classifier for Cochrane Reviews", Journal of Clinical Epidemiology, vol. 133, pp. 140-151, 2021.

Data Extraction

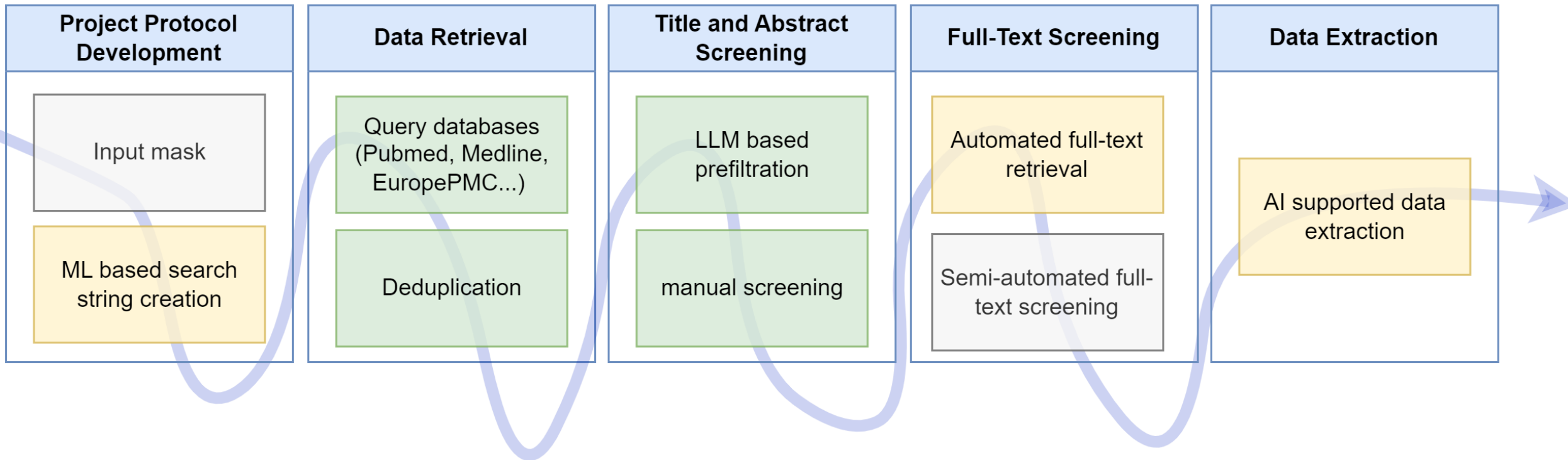
Manual Process

- Extract relevant values from selected scientific papers based on research question
- Spreadsheet
- Compare and analyze findings

NeutrinoReview

- Feature to create custom table
- Extract values in the form of:
 - Value
 - Unit
 - Context

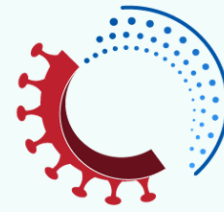
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<https://neutrino-review.web.cern.ch/>



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Contributors

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