

Project ID: 2023-CA1

Exploring Artificial Intelligence Technologies to Develop a “Causal Research Assistant”

Tony Cox, PhD., Cox Associates, Colorado, USA

The investigators will develop an approach for applying recent advances in causal artificial intelligence (CAI) and large language models (LLMs) such as ChatGPT, to assist authors in pre-review, critical thinking, and revision of causal analyses and interpretations in write-ups of scientific articles and reports dealing with potential adverse health effects of exposures. This project will include presentation and discussion of methods to (a) critically examine, evaluate, and summarize the evidence and reasoning supporting causal statements and conclusions about exposure-associated risks in scientific papers; and (b) make concrete, constructive suggestions for improving aspects of causal inference methodology including study design, data analysis, and causal interpretation of conclusions. It is envisioned that the Causal Research Assistant will be able to transparently document the basis for its evaluation of methodological strengths and limitations and its suggestions for improvements for draft and final research manuscripts and reports. This project is at the forefront of applying modern AI to delineate and improve causal conclusions in scientific studies by exploring facts, data, and independently reproducible and verifiable observations and presenting these in a manner that distinguishes them from other elements such as modeling assumptions and choices, judgments or preconceptions that are not empirically implied by or derived from the data and analyses presented.

Implications: The Causal Research Assistant will advance automated critical reasoning approaches with the aim of improving the scientific basis and credibility of objective causal inference analyses for use in product stewardship and regulatory decision making.

Project start and end dates: September 2023 – September 2024

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