



EVIDENCE SYNTHESIS
IRELAND



Cochrane
Ireland

Evidence Synthesis Ireland Fellowship Scheme Project Identification Form

Please note: this Fellowship is a primary methodology project in evidence synthesis

Title

Developing and evaluating automation methods and tools in evidence synthesis

Mentor

Prof James Thomas, EPPI-Centre, UCL in London

Project type and methods

Project type: Methods Development: automation

Methods expected to learn: evaluation methods for carrying out a Study Within A Review (SWAR); how automation tools work in practice

Project details

There are several methods projects on automation in systematic that the EPPI-Centre is progressing along with partners. The Fellow is invited to choose one (or more) of the following to be the focus of their fellowship.

1. "When is it safe to stop screening?" Several review tools automatically 'rank' citations for screening in order of possible relevance, learning and re-learning as more and more screening is carried out. It is clear from retrospective evaluations on completed reviews that the algorithm in theory may be able to offer substantial workload reductions. However, much less work has been carried out on the question of *when* a reviewer might know that it is safe for them to stop screening. This project aims to fill this research gap, and evaluate *prospectively* how reviewers can determine when it is safe to stop screening.

2. "Is my review out of date?" We have been working on tools which aim to keep reviews up to date with new studies as and when they are published. To this end, we have developed a pipeline which takes new records from [OpenAlex](#) on a bi-weekly basis, and automatically associates them with specific reviews. We have been using this pipeline in our ongoing [surveillance of COVID-19](#) research, and have carried out [one cost-effectiveness analysis](#) of its performance. However, more evaluation is needed in more reviews: the focus of this second potential project.

3. “Can we extract outcome data automatically?” The most challenging, and least advanced, automation project concerns the automatic extraction of data from published papers. We have made some progress in extracting data automatically in the [Human Behaviour-Change Project](#), and are currently examining the extraction of outcome data from tables in PDF and HTML files. Again, we have an initial pipeline for this work set up and can extract – to some extent – the information in outcomes tables, but it requires considerably more research and development before it can be considered ready for testing in live reviews.

Project current status

These are ongoing methodological projects with multiple components. We will shape the final methodological project in discussion with the prospective fellow and their own research interests.

Any specific/desirable requirements for fellow (e.g. clinical expertise, methodological expertise)

Essential: Good understanding of the principles of searching for projects 1 and 2, and of data extraction in project 3.

Desired: We will tailor the precise work to the needs and experience of the Fellow. None of the projects require that the Fellow has programming / technical expertise, as data collection and evaluation can be carried out by a researcher with some understanding of systematic reviews. However, we are also happy for the Fellow to work on the data and code (mostly in Python) if they have those skills and would like to work at a more technical level.

Estimated start and completion dates

This work is contingent on the Fellow, so commencement would reflect whenever the Fellow can start. ESI Fellowships in general are expected to be completed within 2 years.