# Reducing the Screening Workload

- <u>What's been done?</u>

  - Cohen et al. [18] & Khabsa et al. [39] both investigated **classifiers** to assist reviewers appraise the **full text of studies** for inclusion and exclusion

  - Miwa et al. [52] have investigated **active learning** for certainty-based screening

- <u>What's the gap?</u>


**Small test collections are used**

These approaches require human-in-the-loop for **relevance feedback**

There is a **variability in the effectiveness** of the approaches

[18] Aaron M Cohen. Performance of support-vector-machine-based classification on 15 systematic review topics evaluated with the wss@ 95 measure. Journal of the American Medical Informatics Association, 18(1):104–104, 2011.
[39] Madian Khabsa, Ahmed Elmagarmid, Ihab Ilyas, Hossam Hammady, and Mourad Ouzzani. Learning to identify relevant studies for systematic reviews using random forest and external information. Machine Learning, 102(3):465–482, 2016.
[52] Makoto Miwa, James Thomas, Alison O'Mara-Eves, and Sophia Ananiadou. Re- ducing systematic review workload through certainty-based screening. Journal of Biomedical Informatics, 51:242–253, 2014.

# Screening Prioritisation

- Screening prioritisation can be thought of in information retrieval terms as **ranking**
  - Although there are other forms of screening prioritisation, e.g. **active learning** [52]
- The Boolean retrieval model considers all documents retrieved **equivalent in terms of relevance** [21]
- **What about a machine learning approach?**

[52] Makoto Miwa, James Thomas, Alison O'Mara-Eves, and Sophia Ananiadou. Re- ducing systematic review workload through certainty-based screening. Journal of Biomedical Informatics, 51:242–253, 2014.
[21] W Bruce Croft, Donald Metzler, and Trevor Strohman. Search engines: Information retrieval in practice, volume 283. Addison-Wesley Reading, 2010.