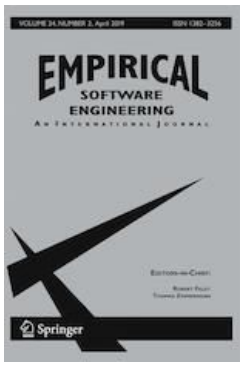
Empirical Software Engineering Journal (EMSE)



Call for Papers: Special Issue on"SE in the age of AI"

Editors of the Special Issue:

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Any description of real-world "AI software" is a complex combination of AI modules (containing the algorithms) with much other conventional code for data accessing, data cleansing, data labelling, model deployment, model evaluation, federation, storage, reporting, configuration management, etc. That is:

- AI software is still software.
- Most "AI software" isn't (just about AI).
- So bad SE can cripple AI.
- And better SE can significantly help AI.

This is a time of much change for SE. As Andrew Ng observes, the rise of SE required inventing processes like version control, code review, and agile, to help teams work effectively. What new processes and tools are needed now for SE in the age of AI (like how we split train/dev/test, model zoos, etc)? Many developers using AI tools now use new processes that haven't been formalized or named yet, ranging from how we write product requirement docs to how we version data and AI pipelines. Now is the time to respect that experience and formalize those processes.

Note to potential authors: A general EMSE paper may discuss AI for SE; e.g., a case study where a data miner was applied to some SE data. But for this special issue we seek SE for AI papers; i.e. empirical evidence about the best and worst practices for the development, monitoring, and maintenance of software that uses AI components. Such papers might discuss issues like the following (and note that this list is a small subset of the space of possible papers):

- Papers that propose general SE principles for building software that uses AI.
- Industrial case studies (which may be short) with lessons learned or practical guidelines.
- Empirical SE research that explores code and/or project issues with AI software.
- Success stories as well as cautionary tales (negative results) where the combination AI+SE failed is some way (and for such cautionary tales, we seek a clear lesson(s) learned from that case study).
- The description of some SE process that mitigates the factors that inhibit successful use of AI;
- A discussion on methods to model a domain, before doing data mining, in order to discover (e.g.) surrogates values that can be collected at least cost.
- Methods for better configuring AI software (e.g. hyperparameter optimization)
- Design patterns for machine learning workflows.
- Requirements engineering methods that enable trade-offs between non-functional requirements of a software system containing an AI component.
- Methods for packaging data for distribution with a data miner.
- Testing and Quality Assurance for AI software.
- Etc. Note that this list is just a **small subset** of the space of possible papers.

If unsure if your paper might be suitable, please contact the special issue editors.

Important Dates:
Deadline for submission: October 15, 2019

Submission Instructions:
Papers should be submitted through the Empirical Software Engineering website (http://www.editorialmanager.com/emse/). Choose "SI: SE4AI" as the Article Type.

If you have questions/comments or would like to volunteer to be a reviewer of the papers, please contact the guest editors.