Special Issue on Intelligent Software Engineering

Aim and Scope

Over the last few decades, the proliferation of open-source software and communities has led to huge amounts of software artefacts (e.g., specifications, source code, documentation, execution logs, code commits and bug reports). These artefacts can provide insights into how software is developed and provide abundant resources to help improve development practices. For instance, GitHub hosts more than 100M repositories (including at least 28M public repositories) and is currently used by more than 31M developers. As another example, Stack Overflow has more than 10M registered users, 18M questions, and 76M comments. The huge amount of software artefacts lays the foundation for data-driven intelligent software engineering.

Intelligent software engineering is an emerging topic which has attracted great attention in both software engineering research and practice. It relies on the synergy between artificial intelligence (AI) and software engineering and aims at improving both software productivity and quality (e.g., providing coding suggestions for better productivity, or locating defects leading to poor quality). Intelligent techniques have seen successful in addressing various software engineering problems, e.g., code generation, code recommendation, and bug fix and repair. Especially, AI can be leveraged to enhance software quality assurance efficiently: it can accelerate manual testing and remove human errors which may exist in manual testing. Moreover, as AI agents can learn and develop throughout the testing process, they can evolve after changes in the code base and find new application functions without human intervention. An AI can easily work twenty-four hours a day, seven days a week, thus, tests can be executed as often as required. Most importantly, all of this can take place in real-time, in the background, quickly and with a greater likelihood of correctness. This Special Issue welcomes contributions in all the areas of Intelligent Software Engineering.

The topics of interest include, but are not limited to:

- AI techniques for software development and reuse
- AI techniques for software maintenance and evolution
- AI techniques for software testing, debugging, and repairing
- AI techniques for open-source ecosystem best practices
- AI techniques for software defect identification and characterization
- Mining software specifications
- Mining source code/code commits
- Mining code review repositories
- Mining execution traces and logs
- Mining bug and crash reports
- Mining Q&A and technical forum data Submission

Please submit your contribution via the online submission systems at submission.wiley.com/exsy. Submitted papers will be reviewed by at least three different reviewers. Submission of a manuscript implies that it is the authors' original unpublished work and is not being submitted for possible publication elsewhere.

Timeline

- Manuscript submission deadline: December 15th, 2021
- Notification of acceptance: January 25th, 2022
- Submission of final revised paper: February 25th, 2022
- Publication of special issue (tentative): March 2022

Guest Editors

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