Special issue: Predictive Analytics in Software Engineering

Overview:

Software systems are increasingly large and complex, making activities related to ensuring software resource allocation and decision making under uncertainty increasingly difficult. In this context, techniques able to automatically retrieve knowledge from software data in order to improve decision-making are highly desirable. Predictive analytics has shown promising results in this area. For instance, predictive analytics can be used to uncover the relationship between features retrieved from software processes, software usage or software itself as well as to discover certain properties of interest, such as the presence of bugs, the likelihood of changes leading to crashes, the presence of code smells, dependencies, etc. Such knowledge can be particularly useful to enhance decision-making process in managing large and complex systems, potentially contributing to improve software quality.

With this in mind, this special issue aims at investigating predictive analytics in software engineering. We would also like to encourage submissions that provide an in depth understanding of when, why and how algorithms to create predictive models work. We believe that such understanding will greatly benefit the software engineering community, given that it will improve the external validity of studies and provide insights into how to improve algorithms further.

The topics of this special issue include but are not limited to:

- Predicting or detecting defects / faults / bugs, crash-prone and bug-prone commits, and code smells.
- Predictive models in search-based software engineering.
- Predictive models for dealing with multiple objectives in software quality.
- Predictive models for policy and decision-making that affects software development and quality.
- Predictive models for software engineering in different settings, e.g. lean/agile, waterfall, distributed, community-based software development.
- Empirical studies involving predictive modelling in software development and quality.
- Industrial experience reports and insights on predictive modelling in software development and quality.
- The effectiveness of human experts vs. automated models in building predictive models.
- Verifying / refuting / challenging previous theory and results on predictive models in software development and quality.
- Building recommender systems in software engineering.

- Predictive analytics algorithms (such as Bayesian Networks, Markov, ensemble methods, etc.) and their application to software engineering.

Guest Editors:
Prof. Ayse Bener, Ryerson University, abener@gwemail.ryerson.ca
Dr. Leandro L. Minku, University of Leicester, leandro.minku@leicester.ac.uk
Prof. Burak Turhan, University of Oulu, turhanb@gmail.com

Paper Submission:
Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals. Submissions extending previous work published at other venues must include at least 30% new material. All papers must be submitted online using the Editorial Manager. Our online system offers authors the ability to track the review process of their manuscript. This online system offers easy and straightforward log-in and submission procedures, and supports a wide range of submission file formats. Manuscript should be submitted to: http://SQJO.edmgr.com. Choose “S.I.: Predictive Analytics” as the article type.

Submission Deadline:
March 22, 2016

Reviewing details:
Each paper will be reviewed by at least 2 reviewers and judged based on:
- Relevance
- Novelty
- Importance
- Soundness
- Presentation and clarity

#

http://www.springer.com/journal/11219

Software Quality Journal
Editor-in-Chief: Harrison, R.
ISSN: 0963-9314 (print version)
ISSN: 1573-1367 (electronic version)
Journal no. 11219