Early Research Achievements Track

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Abstract—The Early Research Achievements (ERA) Track aims at providing researchers with a forum for discussing novel research ideas in early stages of development. The topics of interest for this track are the same as the main research track, but we aim at creating a stimulating atmosphere where researchers can present and get early feedback on promising work that has not yet been fully evaluated.

I. Overview

This year's Early Research Achievements track had the astonishing number of 46 submission written by authors from 21 countries on 6 continents. Of those, 18 papers were selected by the 16 members of the ERA program committee. As expected, the majority of the papers covers traditional CSMR topics like reengineering and software analysis. However, the ERA track is proud to also provide a platform for CSMR-related topics that have not been discussed before. The following paragraphs summarizes the papers of the ERA track and thereby provide a guide for interested readers.

A. Refactoring & Reengineering

Ricardo Terra et al. demonstrate how a recommendation system can help to prevent architectural erosion. Gustavo Villavicencio discusses the difference between efficiency- and understanding-oriented refactorings. Julien Cohen et al. tackle the tyranny of the dominant decomposition in modular systems. Jan Jelschen et al. discuss how software reengineering techniques can be applied to the field of energy-aware computing. Syed Muhammad Ali Shah et al. show how smart refactoring steps can help to untangle programs. Norihiro Yoshida et al. apply a cohesion metric to divide code into functional segments.

B. Testing & Maintenance

Daniel Toll and Tobias Olsson discuss the problem of computing expected values for test cases in the domain of game simulation. Ahmed Lamkanfi and Serge Demeyer show how including a filtering step that identifies outliers can improve the prediction of fix-time of bugs. Yuan Tian et al. introduce a method to identify duplicated bug reports and discuss results of preliminary experiments with Mozilla bug tracking. Tiago Espinha et al. propose a standard open-source system for case studies of maintenance research in the context of service oriented architectures. Francois Gauthier and Ettore Merlo discuss how formal concept analysis can help understanding and visualizing reverse-engineered access control models for systems that manage sensitive data. Scott Grant et al. explore the use of topic models to support software maintenance by examining the project history and topic models generated by a wide set of open source systems.

C. Software Analysis

Ralph Peters and Andy Zaidman discuss the result of a case study showing that software engineers are aware of code smells but are not very concerned with their impact. Tewfik Ziadi et al. discuss a method to identify common features and variants from source code of product lines. Yuta Maezawa et al. introduce a static analysis method to extract state transitions from the source code of Rich Internet Applications. Hiroshi Kazato et al. use formal concept analysis to locate features that span across multiple architectural layers. Veronika Bauer and Lars Heinemann present a method to analyze and visualize the dependencies of a software project on the APIs of third-party libraries. Jan Nonnen and Jan Paul Imhoff introduce a method to monitor the evolution of the active developers' vocabularies within a project with the aim of preventing divergent work-understanding between developers.

II. Program Committee

The track chairs would like to thank the members of the CSMR ERA 2012 program committee:

- Dave Binkley – Loyola University Maryland, USA
- Sue Black – University College London, UK
- Andrea Capiluppi – University of East London, UK
- Damiano Distante – Unitelma Sapienza University, Italy
- Felix Oscar Garcia Rubio – Universidad de Castilla-La Mancha, Spain
- Nils Göde – University of Bremen, Germany
- Jens Heidrich – Fraunhofer IESE/University of Kaiserslautern, Germany
- Elmar Juergens – Technische Universität München, Germany
- Juergen Muench – University of Helsinki, Finland
- Reinhold Ploesch – Johannes Kepler Universitt Linz, Austria
- Daniel Ratiu – Fortiss gGmbH, Germany
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