Call for Papers
IEEE Transactions on Software Engineering
Special Issue on
Mining Software Repositories

IEEE Transactions on Software Engineering is seeking original manuscripts for a Special Issue on *Mining Software Repositories*, scheduled for publication in October 2005 timeframe.

Software repositories contain a wealth of valuable information for empirical studies in software engineering: *source control systems* store changes to the source code as development progresses, *defect tracking systems* follow the resolution of software defects, and *archived communications* between project personnel record rationale for decisions throughout the life of a project. Until recently, data from these repositories was used primarily for historical record supporting activities such as retrieving old versions of the source code or examining the status of a defect. Several empirical studies have emerged that use this data to study various aspects of software development such as software design/architecture, development process, software reuse, and developer motivation. These studies have highlighted the value of collecting and analyzing this data. Yet each study has built its own methods and tools to address the formidable challenge of using such data in their research.

This special issue explores current research challenges, ideas and approaches to transform software repositories from static record keeping repositories to active repositories used by researchers to gain empirically based understanding of software development, and by software practitioners to predict and plan various aspects of their project. Papers are sought that address issues including but not limited to the following:

- New approaches to analyze the data stored in software repositories to:
    - Assist in program understanding and visualization
    - Predict and gauge the reliability and quality of software systems
    - Study the evolution of software systems
    - Discover patterns of change and refactorings
    - Understand the origins of code cloning and code design change
    - Model software processes for development, defect repair, etc.
    - Assist in project planning and resource allocation
- Case studies on extracting data from these repositories for large long lived projects
- Proposals for exchange formats, meta-models, and infrastructure tools to ease the sharing of the extracted data and to enable reuse and repeatability of results throughout the community
- Approaches to integrate data between repositories and with other project data such static or dynamic analysis data
- Requirements and guidelines for users and developers of these repositories to ease the analysis of the historical data

A workshop on mining software repositories (**MSR 2004**: http://msr.uwaterloo.ca) was held on May 25, 2004 in Edinburgh, UK, in conjunction with the IEEE International Conference on Software Engineering. Invited papers from the workshop will be reviewed along with papers received through this general call for papers.

Authors will need to indicate their intent to submit a paper by **1st October 2004** – the title of the paper and abstract will need to be submitted via email to msr2004@msr.uwaterloo.ca. Please submit your paper to Manuscript Central at http://cs-ieee.manuscriptcentral.com/ by **22nd October 2004**. As an author, you are responsible for understanding and adhering to our submission guidelines (available online at http://www.computer.org/mc/tse/author.htm). Feel free to contact the Peer Review Supervisor, Suzanne Werner at <swerner@computer.org> or the guest editors if you have any questions.

Important Dates

Intent to Submit Deadline:	**October 1, 2004**	Manuscript Submission Deadline:	**October 22, 2004**
Notification of Final Acceptance:	**April 18, 2005**	Publication Date:	**October 2005**

Guest Editors

Ahmed E. Hassan
Richard C. Holt
University of Waterloo, Canada
aeehassa@plg.uwaterloo.ca
holt@plg.uwaterloo.ca
plg.uwaterloo.ca/~aeehassa/
plg.uwaterloo.ca/~holt/

Audris Mockus
Avaya Labs Research, USA
audris@research.avayalabs.com
www.research.avayalabs.com/user/audris/

Philip Johnson
University of Hawaii, USA
johnson@hawaii.edu
csdl.ics.hawaii.edu/~johnson/