

Issue Overview

2003 International Conference on Software Maintenance: The Architectural Evolution of Systems



The 2003 International Conference on Software Maintenance (ICSM) was held in Amsterdam, the Netherlands. The conference theme focused on the architecture of existing systems, and attendees represented both researchers and practitioners in the field. Architecture was a hot topic, because it is viewed by many as the key to successful software maintenance. As systems evolve, the degree to which the software's architecture helps or hinders evolution becomes increasingly significant. So too does the way in which the architecture changes over time, especially if it degrades. We invited authors of three of the best ICSM papers to expand their submissions for inclusion in this special issue of the *Journal of Software Maintenance and Evolution: Research and Practice*. Each paper addresses a critical aspect of software architecture.

In 'Architectural support in industry: a reflection using C-POSH', R. J. Bril, R. L. Krikhaar and A. Postma address the problem of automated support of architectural artifacts, such as architectural recovery, visualization, analysis and verification. Based on their experience at Philips, they propose a process for documenting and changing an architecture involving several roles: a champion, a company angel, a change agent and a target. The process includes key 'pillars' on which to build the software: Change management, Process, Organization, Software development environment and Humans—collectively referred to as C-POSH.

In 'Automatic regression testing for evolving GUI software', A. Memon, A. Nagarajan and Q. Xie describe a framework called DART (Daily Automated Regression Tester) that assists in frequent re-testing of graphic user interface (GUI) software. Their approach automates structural GUI analysis, smoke test case generation, test oracle creation, code instrumentation, and more. By running experiments on real code, the authors suggest the time and memory requirements of DART and compare the costs of applying DART at different levels of detail.

In 'An approach to the measurement of software evolution', A. P. Nikora and J. C. Munson consider software's structural characteristics and their role in the overall architecture. They describe a fault enumeration methodology related to measures of the evolving system's structure and they demonstrate its use to predict likely faults.

We hope you find these papers as varied and stimulating as we did. Each one takes a different perspective and makes a significant contribution to our understanding of software evolution.



We hope that this small taste of the large variety of papers at ICSM will whet your appetite and encourage you to attend future meetings of the ICSM.

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