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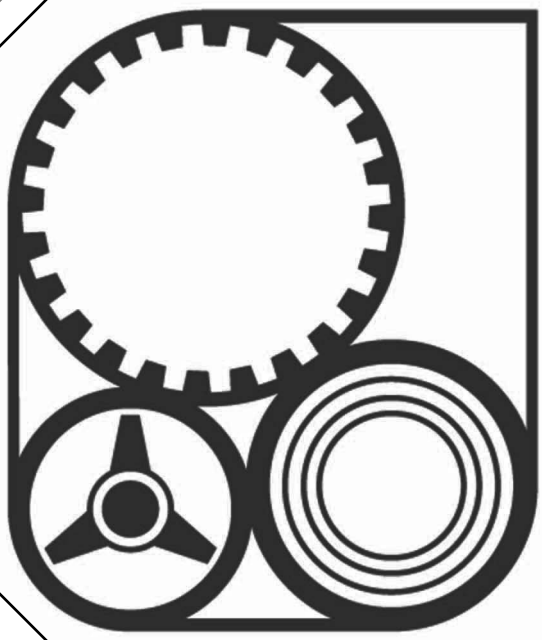

SEAMS'11

Proceedings of the 6th International Symposium on

Software Engineering for Adaptive and Self-Managing Systems

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Sixth International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2011)

Proceedings

Holger Giese and Betty H.C. Cheng

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Welcome to SEAMS-2011

Aloha and Welcome to Hawaii and SEAMS-2011, the *6th International Symposium on Software Engineering for Adaptive and Self-Managing Systems*, an ICSE co-located event.

An increasingly important requirement for a software-based system is the ability to self-manage by adapting itself at run time to handle changing user needs, system intrusions or faults, a changing operational environment, and resource variability. Such a system must configure and reconfigure itself, augment its functionality, continually optimize itself, protect itself, and recover itself, while keeping its complexity hidden from the user.

The topic of self-adaptive and self-managing systems has been studied in a large number of specific areas, including software architectures, fault-tolerant computing, robotics, control systems, programming languages, and biologically-inspired computing.

The objective of this symposium is to bring together researchers and practitioners from many of these diverse areas to engage in stimulating dialogue regarding the fundamental principles, state of the art, and critical challenges of self-adaptive systems. Specifically, the symposium focuses on the software engineering aspects, including the methods, architectures, algorithms, techniques, and tools that can be used to support dynamic adaptive behavior that includes self-adaptive, self-managing, self-healing, self-optimizing, and self-configuring, and autonomic software.

While this year is the first for SEAMS as a symposium, the SEAMS community has been steadily growing for the past 6 years, originally starting as an ICSE Workshop. It is particularly noteworthy that SEAMS has continued to attract and retain researchers and practitioners from a variety of adaptive systems-related areas, including interesting application areas that pose wonderful research challenges for the community. We received 77 submissions, where 21 full papers and 5 position papers were accepted for inclusion in the symposium. Each paper was reviewed by at least 3 program committee members. In short, the quality of the submissions was quite high, with a tough selection process, all of which have yielded a high-quality program.

This year we have a program that illustrates on the one hand, the maturity of the field with sessions on programming language, modeling, and framework support for the development of adaptive systems, while on the other hand, we are clearly making significant advances in techniques that provide true run-time support for adaptive activities, such as monitoring, automatic reconfiguration, and service composition. We also have a great collection of position papers that describe exciting and promising work for the adaptive systems area.

As adaptive systems become more prevalent, particularly in high-assurance applications, the need for explicitly addressing assurance in adaptive systems becomes paramount. It has become clear that many of the traditional software engineering techniques cannot be directly applied to adaptive systems due to the added level of complexity posed by the run-time requirements. As such, this year, we have a special focus on Assurance for Adaptive Systems. We launch this focus with a keynote by Professor Carlo Ghezzi (Politecnico di Milano) who will share his work and vision in this area. We follow it by a paper session comprising several papers that describe assurance techniques ranging from testing to model-driven techniques. Finally, Professor David Garlan (Carnegie Mellon University) will moderate a session comprising several researchers working on assurance for adaptive systems who will provide insight to the research challenges in this area and a preview of promising future directions.

We are extremely grateful for the efforts from numerous people who have helped to make the SEAMS debut as a symposium a huge success. First, we acknowledge the significant effort on the part of the members of the program committee who spent countless hours to review all of the papers and participated in numerous discussions. Second, we greatly appreciate Debi Brodbeck for all her patience in answering all of our questions regarding the logistics of organizing SEAMS as a symposium, a co-located ICSE event. Richard van Stadt, as always, has been wonderful in managing CyberChair and dealing with all the details associated with paper submissions, communication with authors, etc. Dirk Beyer has been very helpful in arranging the publication details for the proceedings. One of the key reasons for the large number of high quality submissions is due to the valiant and tireless publicity efforts by the Publicity Co-Chairs, Thomas Vogel and Basil Becker. Rogerio de Lemos, as the chair of the SEAMS Steering Committee, has been the ever-present force that has helped us to stay on track with so many details with organizing SEAMS. Finally, we thank all the authors who submitted papers and the participants for their contributions to the SEAMS-2011 Symposium.

Mahalo and Aloha

Betty H.C. Cheng and Holger Giese

SEAMS Program Chair and General Chair

Contents

Assurance

Position Papers

Frameworks

Author Index

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