

## informatik-Kolloquium

Der Fachbereich Informatik der Johannes Kepler Universität Linz<sup>1</sup> lädt in Zusammenarbeit mit der Österreichischen Gesellschaft für Informatik (ÖGI) zu folgendem Vortrag ein:

### **EcoWare: Past, Present, and Future**

**Ass.-Prof. Dr. Sam Guinea and Prof. Dr. Luciano Baresi**  
**Politecnico di Milano, Italy**

*27. November 2014, 17:00-18:00, S3-0218*  
*(JKU Science Park 3, 2nd Floor)*

#### **Abstract:**

Due to the growing pervasiveness of the service paradigm, modern systems are now often built as software as a service, and tend to exploit underlying platforms and virtualized resources also provided as services. Managing such systems requires that we be aware of the behaviors of all the different layers, and of the strong dependencies that exist between them. ECoWare is an extensible framework for the implementation of multi-level MAPE (Monitoring, Analysis, Planning, and Execution) control loops that can be used to enrich complex Web- and Cloud-based applications with autonomic capabilities. In this talk we will start by presenting the work that helped us establish the ECoWare initiative. In particular, we will discuss how we have used Complex Event Processing (CEP) techniques to achieve multi-level monitoring, as well as how we have used Queuing Networks as a means to reason about a complex system's non-functional behavior. The talk will then shift to our ongoing work, in which we are focusing on the decentralized coordination of multiple adaptation actions, so that they can be enacted across the cloud application's complex deployment. The work takes into account the dependencies that may exist between the different adaptation actions. Finally, we will provide a look into the future, and discuss how we are working to adopt ECoWare's main concepts within an OpenStack installation, to provide an efficient IaaS that can cope with the deployment and execution of multiple autonomic applications.

<sup>1</sup> Der Fachbereich (<http://informatik.jku.at>) besteht aus folgenden Instituten: Anwendungsorientierte Wissensverarbeitung (FAW), Bioinformatik, Computational Perception, Computer-Architektur, Computergrafik, Formale Modelle und Verifikation, Informationsverarbeitung und Mikroprozessortechnik (FIM), Integrierte Schaltungen, Pervasive Computing, Systems Engineering and Automation, Systemsoftware, Telekooperation

**Sam Guinea** is an Assistant Professor at Politecnico di Milano. His research mainly focuses on establishing novel techniques and tools for the development of modern autonomic software systems. He is known in the Software Engineering and Service Oriented Architectures research communities for his work on Self-supervising BPEL processes and the development of the Dynamo BPEL execution framework. More recently he has shifted his attention to the runtime management of Internet and Cloud-based applications. He has been a member of various program committees for international conferences and workshops, and has often provided referee services in top-class journals such as the IEEE Transactions on Software Engineering, the IEEE Transactions on Services Computing, and the Springer Journal on Service Oriented Computing and Applications.

Research interests: Autonomic software systems, service-oriented applications, development of mobile proximity applications  
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**Luciano Baresi** is an Associate Professor at Politecnico di Milano. He was also visiting researcher at University of Oregon at Eugene (USA) and University of Paderborn (Germany). Luciano was program co-chair of ICECCS, FASE, ICWE, ICSOC, SEAMS, and ESEC-FSE. He is currently on the editorial board of Springer Service Oriented Computing and Applications, ACM Transactions on Autonomous and Adaptive Systems, IEEE Transactions on Services Computing, and IEEE Transactions on Software Engineering. He received his Ph.D. in computer science from Politecnico di Milano.

Research interests: Dynamic software systems, service-oriented applications, self-adaptive and autonomic software systems.  
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