

Invited Talk Rolf Hennicker, LMU Munich

Monday, 04.02.2019, 14:50, APB 3105

Title:

Role-based Development of Dynamically Evolving Ensembles

Abstract

Ensembles are groups of active entities which collaborate to achieve certain goals. They are characterised by a highly dynamic and adaptive behaviour. Modelling software systems for ensemble execution is challenging since such applications involve complex interaction structures and dynamically changing architectures. Our approach is centered around the notion of a role such that a component can participate (possibly at the same time) in various ensembles under specific roles. In the first part of the talk we propose a development methodology starting from dynamic logic specifications of global interaction scenarios and ending with concrete, process-algebraic descriptions of local behaviours of ensemble participants. The ability of components to change roles is useful for modelling adaptive behaviour. In the second part of the talk we propose a strategy to develop adaptive ensembles using a role-based adaptation pattern.

Bio

Rolf Hennicker has studied Mathematics at LMU Munich. He received his PhD degree at the Institute of Informatics, University of Passau, and later his Habilitation degree at LMU Munich. During that time he was several times guest professor at École Normale Supérieure de Cachan working on observability concepts in algebraic specifications. Since 2001 he is member of the IFIP Working Group 1.3 "Foundations of System Specification". Rolf Hennicker became Professor for Computer Science at LMU Munich in 2004 and Academic Director at LMU in 2008. From 2000 to 2010 he was leader of the Computer Science group of the German national project GLOWA-Danube dealing with integrated methods for environmental simulation in the context of global climate change. His main research focus is on formal methods in software development with an emphasis on interface theories, reactive components and ensemble-based systems.