UNIVERSITÄT SALZBURG

Department of Computer Science

Distinguished Lecture Series

Actor-Oriented Design: Concurrent Models as Programs

by Edward A. Lee, Professor

CHESS: Center for Hybrid and Embedded Software Systems, University of California, Berkeley

Concurrent, domain-specific languages such as Simulink, LabVIEW, Modelica, VHDL, SystemC, Giotto and OPNET provide modularization mechanisms that are significantly different from those in prevailing object-oriented languages such as C++ and Java. In these platforms, components are concurrent objects that communicate via messaging, rather than abstract data structures that interact via procedure calls. Although the concurrency and communication semantics differ considerably between platforms, they share enough common features that we consider them to be a family that we call actor-oriented. When considering and comparing actor-oriented platforms we can orthogonalize six issues: Abstract Syntax Concrete Syntax, Syntax-Based Static Analysis (e.g. Type Systems), Abstract Semantics, Concrete Semantics, and Semantics-Based Static Analysis (e.g. Verification). Actor orientation cross-cuts these issues, having implications in all of them.

Edward A. Lee is a Professor in the Electrical Engineering and Computer Science Department at U.C. Berkeley. His research interests center on design, modeling, and simulation of embedded, real-time computational systems. He is a director of CHESS, the Berkeley Center for Hybrid and Embedded Software Systems, and is the director of the Berkeley Ptolemy project. He is co-author of five books and numerous papers. His bachelors degree (B.S.) is from Yale University (1979), his masters (S.M.) from MIT (1981), and his Ph.D. from U. C. Berkeley (1986). From 1979 to 1982 he was a member of technical staff at Bell Telephone Laboratories in Holmdel, New Jersey, in the Advanced Data Communications Laboratory. He is a co-founder of BDTI, Inc., where he is currently a Senior Technical Advisor, and has consulted for a number of other companies. He is a Fellow of the IEEE, was an NSF Presidential Young Investigator, and won the 1997 Frederick Emmons Terman Award for Engineering Education.

Where	Jakob-Haringer-Straße 2, T01	
When	Tuesday, 14 December 2004, 14:00 h	Host: Prof. Wolfgang Pree