

Research



Welcome to SEAMS 2009

*Software Engineering for
Adaptive and Self-Managing Systems*



SEAMS 2009 Program

Tuesday, May 19 Afternoon



- **16:00 — Report SEAMS Steering Committee Meeting
SEAMS 2010 and SEAMS 2011 Outlook**
R. de Lemos, University of Coimbra, Portugal
- **SEAMS 2010**
 - With ICSE 2010 in Capetown, South Africa
 - General Chair: Rogério de Lemos, University of Coimbra, Portugal
 - Program Chair: Mauro Pezzè, University of Lugano, Switzerland
- **SEAMS 2011**
 - With ICSE 2011 in Honolulu, Hawaii, USA
 - General Chair: Holger Giese, Hasso Plattner Institute, Berlin, Germany
 - Program Chair: Betty Cheng, Michigan State University, USA



SEAMS 2009 Program

Tuesday, May 19 Afternoon



- **16:10 — SEAMS Brainstorming Fishbowl Panel**

J. Magee, Imperial College, UK & H.A. Müller, Univ. of Victoria, Canada

- **SEAMS challenge projects**
- **Define SEAMS patterns**
- **SEAMS models**
- **SEAMS benchmarks (e.g., Znn.com)**
- **Self-adaptive versus self-organizing**
- **Making control loops explicit**
- **Managing and leveraging uncertainty — trade-offs between flexibility and assurance**



Dynamical Software Systems



- Today, there are several research communities dealing with highly dynamical and evolving software-intensive systems
- The fundamental assumption
 - The execution environment for these systems will not be known a priori at design time—only be partially known
 - Thus, the application environment of such a system cannot be anticipated statically at design time
- One strategy to approach this problem
 - To reconcile the static view with the dynamic view by breaking the traditional division among software development phases and by moving some activities from design time to run time
- What the approaches of different communities have in common is
 - To push design decisions towards run-time
 - To exhibit capabilities to reason about the system's own state and its environment
 - Different communities concentrate on different business goals and technological solutions



Biological Systems —Uncertainty



- The internal mechanisms of humans continuously work together to maintain essential variables within physiological limits—the n-dimensional viability zone
- The goal of human self-managing behavior is directly linked to survivability
 - If the external or internal environment pushes the system outside its physiological equilibrium zone, the system will work towards returning to the equilibrium zone



n-dimensional
viability zone
equilibrium



Managing Tradeoffs



- **From** satisfaction of requirements through traditional, top-down engineering



- **To** satisfaction of requirements ***by regulation*** of complex, decentralized systems

How much environment uncertainty can we afford? What's the cost?
What benefits do we accrue by accommodating context uncertainty?



16:00 Fishbowl Panel



- A ***fishbowl conversation*** is a form of dialog that can be used when discussing topics within large groups.
- The advantage of Fishbowl is that it allows the entire group to participate in a conversation—no slides.





Fishbowl Participation



- Six chairs — one empty chair
- Any member of the audience can, at any time, join the fishbowl by occupying the empty chair and then participate in the discussion; only people in the fishbowl can speak.
- When this happens, an existing member of the fishbowl voluntarily leaves the panel to create an empty chair
- Jeff is the enforcer 😊
- The discussion continues with participants frequently entering and leaving the fishbowl.





**Keep in mind—the more you
get involved in this workshop,
the more you will get out of it!**



Thank you!



- Organizers
- Program Committee
- Authors
- Attendees
- Sponsors
- ICSE 2009 Chiefs



Sponsoring Organizations



ICSE 2009
31th International Conference on Software Engineering
The Westin Bayshore Vancouver, British Columbia, Canada
May 16 – 24, 2009 <http://www.cs.uregon.edu/events/icse2009>

Corporate Organizations



Supporting Organizations





Thank you
Danke
Xie xie
Khawp khun
Yum ōtio
Mahalo
Salamat
Juspa
Obrigada
Spacibo
Arigato

Research
Enjoy ICSE 2009!!