

Session 4 Discussion

Recorded by Martina Maggio, Lund University, Sweden

Tetsuo Tamai — How to capture context and context-dependent behavior

Major results of Kumiki project in component and composition design are the collaboration model Epsilon (Tamai et al) and the aspected oriented model (Masuhara et al). In formal verification variant parametric type system (Igarashi) and work model checking for component based systems. Kumiki 2 continued the work with aspect oriented programming with S. Chiba. Then we included the notion of context.

Context awareness is necessary for adaptation. Example problems are conference guide systems, program editor and robot simulation. COP based on the concept of layers and the context is determined by many things like the results of sensors, location. These things define the environment of operation.

Hidehiko Masuhara — What do self-adaptive systems adapt to?

COP (Hirschfeld 2008) tries to modularize context-dependent behavior by providing language mechanisms. If we want programs to be modular context is useful. Otherwise we have a lot of if branches. Example adventure game: hero in normal state, hero in drunk state (whenever you try to move the hero, he moves randomly). Another example is energy aware mobile applications (Cohen 2012) where the context can be the device status (plugged/unplugged) or the network status and the behavior of the application can be different (quality of the rendering, data saving frequency and so on).

Context: surrounding of an adaptation unit. Research is definition of structured context. Uniform language mechanisms to work with context (surrounding objects as contexts, existing data structures).