Report from ESWEEK'07

I have attended ESWEEK'07 (EMSOFT'07 and FORMATS'07 conferences), which was held in Salzburg, Austria, at the beginning of October 2007. I have presented the paper Multi-Processor Schedulability Analysis of Preemptive Real-Time Tasks with Variable Execution Times (joint work with Martin Stigge and Wang Yi) at FORMATS. The EMSOFT conference deals with the development of embedded systems with the strongest focus on the correctness (or safety) of the software. The panel discussion presented the grand challenges in this area: mainly to find appropriate abstraction layers for the development of embedded systems; a concrete challenge is a verified sensor network. The FORMATS conference is a smaller event for the formal methods community in real time systems, mainly timed automata community. It is a perfect opportunity to meet the people dealing with very similar problems as I deal with.

The most interesting tutorials presented the real-time calculus (Lothar Thiele) and the abstract interpretation based verification (Patrick Cousot). The real-time calculus provides a uniform framework for schedulability analysis of multi-processor (multi-resource) systems based on abstraction of the computation requests and resource availability by arrival and service curves, respectively. The main advantage of this approach is its uniformity and scalability. If the arrival/service curves abstraction suffices for our purposes then this method is definitely worth considering. An abstract interpretation of a program gives it a finite state semantics, which can be analyzed algorithmically. Choosing the abstractions such that they satisfy some properties allows us to conclude some properties about the original system.

Pavel Krcal, Uppsala University