

ARTES++ Travel Report

Marcelo Santos¹, PhD. Student at MRTC, Mälardalen University

Purpose of Travel

The purpose of the trip was to attend ACACES 2007, the third International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems, from July 15 to July 20, in L'Aquila, Italy. The school has a broad scope and courses range from low level technological issues to advanced compilation techniques.

Activities

The school offered twelve courses, four lectures per day, with three courses running in parallel, so that each student could take four courses. I took the following:

1. Advanced Program Analyses for Object-oriented Systems, given by Barbara Ryder from Rutgers University, USA. This course presented program analysis (static and dynamic) for compilation and optimization, mainly analyzing the execution call structure of object oriented programs. The course covered some methods, with their costs and application domains;
2. Compilation Techniques for Embedded Systems, given by Jack Davidson from University of Virginia, USA. This course presented optimization needs for compilers for embedded systems, such as runtime performance, code size, memory performance, etc. It emphasized performance for speed, memory, energy and security requirements (for embedded systems);
3. Embedded VLIW Architectures and Compilers, given by Paolo Faraboschi from Hewlett Packard Laboratories, Spain. This course focused on low level issues involved in VLIW (very large instruction word) like cost, time to market, organization and design of the architecture, compilation, etc;
4. Memory Architecture Aware Compilation, given by Peter Marwedel from University of Dortmund, Germany. This course described the problem "memory wall", where the system speed is limited by the speed of the (slow) memory. The focus of the course was on how to optimize compilation to improve time-predictability and energy efficiency when the compilation is aware of the memory hierarchy. The focus was on scratch-pad memories.

Travel support

The trip was supported by a grant from ARTES (approx. 13000 SEK).

¹Email: marcelo.santos@mdh.se