



ARTES Travel Report

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POPL / SPACE / PEPM 2006

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The 33rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages[®] (POPL) was held January 11 – 13, 2006, in Charleston, South Carolina, USA. POPL is *the* major conference for the programming language research community. The call for papers attracted a total of 167 submissions, of which only 33 were accepted. In addition to POPL, we visited two affiliated workshops, SPACE (Semantics, Program Analysis and Computing Environments for memory management) and PEPM (Partial Evaluation and Program Manipulation).

Among the presentations (at POPL), I found the invited talk by Tim Sweeney from Epic Games the most exciting one. The title of the talk was "The Next Mainstream Programming Language: A Game Developer's Perspective". He mainly addressed the shortcomings of the current mainstream language family (C/C++/Java/C#), to wit scalable framework for componentization and concurrency as well as the challenge of writing very complex software with real-time performance requirements.

At SPACE I found the presentation of the paper "Separation Logic for a Higher-Order Typed Language", by Neelakantan Krishnaswami, most interesting. Separation logic is an extension to Hoare logic which adds a conjunction operator that separates the propositions to hold in disjoint parts of the heap. This logic enables *local reasoning* about programs and their heap usage behaviors. The main contribution of this paper is, as the title reveals, a definition of separation logic for a higher-order typed language. It has previously only been used for low-level programs, which intrinsically have been first-order. The main problem he encounters is that the triple (precondition, command, postcondition) is not sufficient enough to assure that the specification is true since the command might contain free-variables that are bound to functions. He solves it by describing the specification as the triples as functions of their environments. He derives inference rules for *universal specifications*, i.e. the specification is true for all type-correct environments.

At our stay, we had the chance to spend one whole day devoted to sightseeing. Charleston, SC, is one of the oldest and most significant *southern* cities. Among many other historic events, the civil war began here, at Fort Sumter. We visited the world war 2 carrier U.S.S. Yorktown at Patriots Point Museum. Last but not least, the market streets offer a broad variety of dining.