



Outdoor Distributed Computing

Cristian Borcea

The next generation of computing systems will be embedded everywhere in the physical world and will penetrate every domain of our daily life. These next generation systems will be dynamically connected to form ad hoc networks of embedded systems. Developing services and applications on top of this huge ubiquitous computing environment is constrained by the lack of proper programming models and system support to address its volatility, heterogeneity, and scale.

This talk will present Spatial Programming and Smart Messages, a programming model and its corresponding system architecture for outdoor distributed computing. Spatial Programming is a location-aware programming model that enables programmers to easily develop distributed applications over dynamic networks of potentially mobile embedded systems. To support Spatial Programming, we have used Smart Messages, a system architecture based on execution migration and self-routing. A prototype system has been developed to demonstrate the feasibility of the proposed solutions.

This talk will describe our experiences with building outdoor distributed applications over ad hoc networks of PDAs and Smart Phones running our prototype. The talk will also present TrafficView and EZCab, two distributed applications for intelligent transportation systems. These applications have been tested in real-life traffic scenarios that use only short-range wireless communication.

Cristian Borcea is an Assistant Professor in the Department of Computer Science at New Jersey Institute of Technology. His research interests are in pervasive computing, distributed systems, mobile networking, and operating systems. His current research focus is on building real-life pervasive systems and applications. Cristian received his Ph.D. degree from Rutgers University in 2004.

Date: Thursday, March 17, 2005, 8:00 pm (Refreshments at 7:30 pm)
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On-line info: http://www.acm.org/chapters/princetonacm

All ACM / IEEE-CS meetings are open to the public. Students and their parents are welcome. There is no admission charge, and refreshments are served.

A pre-meeting dinner with the speaker is held at 6:00 p.m. at Ruby Tuesday's Restaurant on US 1. Please send email to princetonacm@acm.org in advance if you plan to attend the dinner.

