
LaCoMoCo

Crossroads Copenhagen

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The IT University of Copenhagen



My background

- ◆ Cand. Scient. from University of Copenhagen, 1994
- ◆ Ph.D. from Carnegie Mellon University, 1999
- ◆ Started at ITU March 2000 as Assistant Professor
- ◆ Now Associate Professor and Head of Theory Department



Research Departments at ITU, I

◆ Theory

- Logic; semantics; concurrency; mobility; algorithms; data structures; complexity theory.

◆ Innovation

- Image analysis; signal processing for mobile applications; programming language technology; formal verification; 3D graphics; and assistive technologies.



Research Departments at ITU, II

- ◆ Design and Use of IT
 - The interplay between IT and users in an organizational context; Systems development; object-oriented design and programming; and technologies for collaboration and knowledge sharing.
- ◆ Digital Aesthetics and Communication
 - The aesthetic, cultural, social and communicative aspects of IT.



LaCoMoCo / Crossroads Cph

- ◆ A research theme spanning all departments



Crossroads Copenhagen (CC), I

Background:

- ◆ Network of public and private institutions and companies for culture, media and communications technology.
- ◆ Partners: Nokia, DR, CSC, ITU, CBS, TDC, KUA, HP, Royal Library, Boersen, Consumer Information, ...
- ◆ Common theme: Context-dependent Mobile Communication.
- ◆ http://www.orestad.dk/or_forside/beliggenhed.
- ◆ <http://www.crossroadscopenhagen.com>



Crossroads Copenhagen (CC), II

Organization:

- ◆ Board, with Mads Tofte as preliminary president of the board (until February 17, 2003)
- ◆ Secretariat



Crossroads Copenhagen (CC), III

- ◆ Officially launched on May 2, 2002, with Minister, etc.
- ◆ 3 projects (A, B, C) with titles:
- ◆ A: 3D location-dependent mobility (ITU)
- ◆ B: Situation-based services (Nokia)
- ◆ C: E-learning (CSC)

My role: head of Project A



LaCoMoCo

- ◆ Laboratory for Context-dependent Mobile Communication
 - Author of Expression of Interest Submitted June 7, 2002
 - Integrated Project
 - Partners: CC partners + Cambridge + INRIA



Aim of LaCoMoCo

- ◆ Context: any information that characterizes a situation related to the interaction between users, applications, and the surrounding environment
- ◆ Key concept in ubiquitous / pervasive computing
- ◆ Weiser 1991: two most crucial issues for realizing potential of ubiquitous computing: location and scale
- ◆ Aim: create a large-scale laboratory in which we can study how to best provide and make use of location information, as a crucial step toward realizing the potential of ubiquitous computing



CIT application: LBS

Pilot project for project B on Location-based services.

- ◆ Joint project with Nokia and SMSG (subcontractor)
- ◆ Jointly run by Lars Birkedal, Peter Carstensen and Kjeld Schmidt, with Schmidt the ITU head of this subproject.
- ◆ Goal: develop technical and conceptual basis for location-based services for mobile phones
- ◆ Prototype being developed by SMSG, seminar series with about 8–10 ITU researchers (from 3 departments + Linux Lab) started in January.



Project A — LaCoMoCo

- ◆ Development Working Group (DWG)
- ◆ Research Working Group (RWG)
- ◆ WLAN positioning system
- ◆ Meetings started in late August.
- ◆ `http://lacomoco.it-c.dk`



Development Working Group

Goals of DWG:

- ◆ Make a requirement specification for the IT and Mobile Communication Infrastructure (RSI) in Ørestad Nord.
- ◆ Produce document giving an overview of implementation plans for each of the partners (when and what)



Development Working Group

Some issues:

- ◆ to make RSI, the DWG should interact with all CC partners, also contact those responsible for new building projects (Høpfner, Nordea, Bikubenfond,...)
- ◆ infrastructure should be based on open standards and norms to facilitate collaboration and joint projects
- ◆ the RSI is needed for each of the partners of CC to coordinate their own investment in IT with the IT infrastructure in the region
- ◆ joint WLAN in Ørestad Nord
- ◆ location server for mobile phones



Development Working Group

Members and Head

- ◆ Head: Kim Brostøm, DR, refers to head of project A
- ◆ Other Members: heads of IT departments in the organizations + TDC and Nokia representatives.



Research Working Group (RWG)

Goals of RWG:

- ◆ Organize meetings with research presentations
- ◆ Collect concretizations of research subprojects with descriptions:
 - state-of-the-art
 - problems to be attacked
 - participants
 - resources needed
- ◆ Contact with int'l partners
- ◆ Choose among suggested research subprojects

RWG = Lars Birkedal + Peter Carstensen



RWG Presentations: Plan

- ◆ 2 hour meetings with 3–4 presentations
- ◆ purpose: to present ideas, foster collaboration
- ◆ present preliminary concretization
- ◆ together with possibly new contacts, finish concretization

Who can present ?

- ◆ researchers at universities
- ◆ company representatives



RWG Presentations

4 meetings held: presentations by

- ◆ researchers from all four ITU research departments
- ◆ researchers from KUA (Psychology, Philosophy, Media)
- ◆ TDC, Nokia



RWG Sub Projects

8 sub project descriptions submitted January 15, 2003:

- ◆ Models, Calculi and Prog. Lang. for CoMoCo
- ◆ Use Patterns and Social Networks in CoMoCo
- ◆ IT-surveillance and Management Philosophy
- ◆ Hands-free Multimodal Interaction with mobile wearables
- ◆ A large-scale CAN architecture
- ◆ Context-aware computing at work
- ◆ Wireless and massive interconnection infrastructure for CoMoCo
- ◆ Location-based Games



ITU Positioning Server

- ◆ Ekahau WLAN positioning server installed by Ass. Prof. John Aasted Sørensen and R.A. Martin Schiötz (Dol) in Fall 2002
- ◆ LaCoMoCo Web API developed by R.A. Anders Cervera employed since November 1, 2002 (Theory)
- ◆ Status: sample applications using iPAQ's and SMS server, web-site for students and researchers
- ◆ Platform to be used by students and researchers



Student Projects

- ◆ We already advise around 15–20 students in related projects.
- ◆ I have organized the development of organized student projects in CoMoCo, covering all study lines + Linux Lab
- ◆ Henning Niss (DoI), Susana Tosca (DiAC), Kjeld Schmidt (DUIT) take the lead from now on, with help from Anders Cervera (Theory)
- ◆ Goal: to have organized projects ready for students in next project period (May 2003).
- ◆ Fun!



Student Projects

LaCoMoCo Web API:

- ◆ `http://positionserver.itu.dk:8000`

Preliminary project description:

- ◆ `http://positionserver.it-c.dk:8000/projects/p`

