

CURRICULUM VITAE

Lodewijk Smit

Personal information

Family name	Smit
Given names	Lodewijk Theodoor
Date of birth	April 2nd, 1974
Place of birth	Rijssen, The Netherlands
Nationality	Dutch
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Education

2/2000 - 1/2004	Ph.D. (Computer Science), University of Twente thesis title “Energy-Efficient Wireless Communications”
9/1998 - 8/1999	Professional development course: Management for young Masters of Science, TSM Business school
9/1992 - 9/1996	M.Sc. (Computer Science), University of Twente subject of master thesis: “Scheduling of image processing tasks on a heterogeneous multiprocessor platform”
8/1986 - 7/1992	Atheneum-B, Christelijk Lyceum Almelo

Work Experience

2/2000 - present	research scientist, University of Twente
9/2000 - 12/2000	internship, Philips NatLab, Eindhoven (as employee UT)
1/1997 - 4/2000	project manager & tech. consultant, Akzo Nobel, Arnhem
1/1996 - 9/1996	master project, Océ - Van der Grinten, Venlo
10/1995 - 12/1995	internship, Dr. Neher Lab, KPN Research, Leidschendam

Selection of Recent Publications

1. L.T. Smit. *Energy-Efficient Wireless Communications*. PhD thesis, University of Twente, Dec. 2003. ISBN:90-365-1986-1.
2. L.T. Smit, G.J.M. Smit, J.L. Hurink and G.K. Rauwerda. *BER Estimation for HiperLAN/2*. Lecture Notes in Computer Science: Personal Wireless Communications (PWC2004), volume 3260, pp. 164-179, Springer-Verlag, Sep. 2004, ISBN:3-540-23162-5.

A complete list of publications can be found on: www.cs.utwente.nl/~smitl/pubs.

Research Projects

Project Chameleon project (funded by STW)
Website chameleon.ctit.utwente.nl
Period 2/2000 - 1/2004
Subject Reconfigurable computing in hand-held multimedia computers
Contributions * Showed that it is useful *and possible* to adapt the amount of signal processing within a mobile receiver for wireless communications to the current condition of the channel at run-time. The benefits are twofold. In case of bad reception, the amount of signal processing is increased so that the connection still delivers the Quality of Service (QoS) that is requested by the user. In case of good reception, the amount of signal processing is decreased so that the energy consumption is reduced.
* Built a C++ simulator of a part of an UMTS receiver (incl. RAKE receiver, turbo and Viterbi FEC decoders).
* Built a control system that adapts an UMTS receiver to minimize the amount of processing at run-time to achieve a level that is just enough to achieve the requested QoS. Minimizing the amount of processing reduces the energy consumption of the receiver.
* Developed a Bit Error Rate (BER) estimation algorithm based on statistical analysis of the incoming samples. The BER estimation algorithm has been simulated for a WCDMA UMTS wireless link and an OFDM HiperLAN/2 (PHY layer similar to IEEE 802.11a) wireless link. Ericsson Eurolab performed UMTS simulations to validate the proper working and the performance of the BER estimation algorithm so that our results are validated by an external independent party.

Project Smart Chips for Smart Surroundings project (funded by EU)
Website www.smart-chips.net
Period 2/2004 - 12/2006
Subject Development of a flexible and energy-efficient system on chip architecture (including tooling).
The Digital Radio Mondiale (DRM) and the MPEG-4 video standards will be used as test cases to validate the results of the project.
Contribution A spatial mapping algorithm that maps an application to a heterogeneous system on chip architecture with multiple processing tiles of different types (e.g. ASIC, GPP, DSP, reconfigurable hardware). The application is modeled as a set of communicating processes, where for each functional process one or more implementation(s) exist(s) for specific processing tile(s). The goal is to find a mapping with near minimal energy consumption *at run-time*, while satisfying all (QoS) constraints.

Research Interests

Information Theory, Communication Theory, Signal Processing, Scheduling, Operating Systems