

# Curriculum Vitae

Sebastian Skalberg

28th February 2003

## Personal

Full name: Sebastian Christian Skalberg  
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Born: 23rd of April, 1973, in Palo Alto, California, USA.  
Citizenship: Danish and American.  
Marital Status: Single; No children.  
Language Proficiencies: Fluent in Danish and English.  
Capable of German at the social level.  
Can read and understand Swedish and Norwegian.



## Education

**University:** **Ph.D. in Computer Science, University of Copenhagen, Denmark, 2002.**

The title of my Ph.D. Thesis is “An Interactive Proof System for Map Theory”, written under the supervision of Professor Neil Jones and Associate Professor Klaus Grue. For my doctoral work, I’ve implemented Grue’s Map Theory, an alternative foundation for Mathematics built from the untyped lambda calculus, equi-consistent with ZFC set theory. The work has mainly been done with the proof system Isabelle/Pure. Subjects covered during my doctoral studies include cryptography, term rewriting, model checking, and of course (mathematical) logic and higher-order theorem proving.

**M.Sc. in Computer Science, University of Copenhagen, Denmark, 1999.**

The title of my Master’s Thesis is “A Mechanical Proof of the Optimality of a Partial Evaluator”, written under the supervision of Professor Neil Jones. It includes a machine-verified proof (using the proof system Isabelle/HOL) of the optimality of the Lambda-Mix partial evaluator for an untyped lambda calculus. Subjects covered during my master’s studies include advanced semantics, category theory, domain theory, type theory and the Curry-Howard isomorphism, computability theory, computer vision, (medical) image analysis, computer graphics, digital signal processing, and optimization.

**B.Sc. in Computer Science and Mathematics, University of Copenhagen, Denmark, 1998.**

My Bachelor’s Project was on RSA cryptography and written at the Mathematics Department. Subjects covered during my bachelor’s studies include imperative, functional, object-oriented, and logic programming languages, introductory software engineering, complexity theory, algorithmics, computer and OS architecture, compiler development, programming semantics, (linear) algebra, real and complex analysis, statistics and probability theory, history of mathematics, numerical analysis, differential geometry, and general topology.

**High School:** **Rungsted Gymnasium, Denmark, 1991.**

Graduated from the natural sciences line, taking mathematics, physics, and chemistry.

**Primary School:** **Rungsted Skole, Denmark, 1988.**

## Relevant Work Experience

- 2002– **Post-doc at Technische Universität München**  
I'm working on porting the formalization of real numbers in HOL to Isabelle/HOL, as well as enhancing Isabelle/MT, the proof system for map theory that I developed in connection with my doctoral work.
- 1999 **Research Programmer at DIKU**  
My task was to design and implement code for restructuring the code output by the C-Mix partial evaluator.
- 1996–1998 **Teaching Assistant at DIKU**  
I've taught a number of undergraduate courses, covering subjects in computer graphics, computer architecture and compiler design, and semantics. Part of the work was grading the students' mandatory projects (they are typically about 50 pages long).
- 1997–1998 **System Developer at Balthazar A/S (formerly Young & Rubicam Interactive)**  
I primarily worked on designing and implementing a system for specifying virtual environments, used for creating special-purpose semi-3D browsers. The implementation work was done in Java.
- 1996 **System Tester at NCR Denmark**  
I was part of the testing team for NCR's MP-RAS Unix implementation, finding and suggesting fixes for the system to the development team in Colorado, USA.
- 1995 **Programmer at Bording Unistar**  
Implementing interfaces for the Ingres database system. I also implemented an Ingres 3GL/4GL cross-compiler for internal use.
- 1991–1992 **Programmer at Sunway Software**  
Implementing various user interfaces in Pascal.

## Miscellaneous

- 2002 Workshop Chair for the 2002 Federated Logic Conference (FLoC'02)
- 2000 Visited Professor Tobias Nipkow at TU Munich for seven months in connection with my doctoral studies.
- 1997–1999 Student member of the Board of the Faculty of Science.
- 1992–1997 Freshman tutor at the Mathematics Department.
- 1996 Member of the Danish Unix User Group's (DKUUG) Standardization Committee (representing NCR).

## Skills

- Programming Languages: **Experienced:** C, Java, Standard ML, Unix Shell  
**Proficient:** C++, Scheme  
**Knowledgable:** Lisp, REXX
- Systems: **Experienced:** Unix (Linux, AIX, SunOS)  
**User-knowledge:** Windows 95/98/NT/XP, HP-UX