Marcel van der Goot, Ph.D.

Independent Computer Consultant

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Profile

Marcel van der Goot started programming in 1980, and has since then acquired experience in nearly all areas of computer science. A driving force for him is a zero-tolerance attitude towards "bugs," backed up by his knowledge of formal methods and software methodology. His graduate study focused on distributed computing and on VLSI design.

Marcel has been working as an independent computer consultant since 1998, working in the areas of compiler writing, high-level circuit design, and micro-controller programming.

Consulting Areas

- Computer languages

  Custom language design, language front-ends, translators, interpreters, synthesizers, compilers, simulators.

- Systems programming

  Device drivers, file conversions, dedicated hardware, operating systems.

- VLSI design

  Custom CAD tools, high-level design, architecture, digital circuits, asynchronous logic.

- User interfaces

  GUI's for different platforms, text-based interfaces.

Education

Ph.D., Computer Science — June 1995
California Institute of Technology
Thesis advisor: Prof. A.J. Martin
Thesis title: Semantics of VLSI Synthesis

M.S., Computer Science — June 1990
California Institute of Technology
Thesis advisor: Prof. A.J. Martin
Thesis title: Design and Implementation of Multi-Computer C

B.S., Computer Science Aug. 1987
University of Groningen, Groningen, The Netherlands
Thesis advisor: Prof. J.L.A. van de Snepscheut
Thesis title: Design and Implementation of Systolic Algorithms

Work Experience

Independent Computer Consultant 1998–present

Compilers; microcontroller programming; circuit design automation; Verilog and VHDL; FPGA programming; TCP/IP; programming of RS232, I^2C, and PCI interfaces.

Scientist, Tanner Research, Inc. 1996–1998

Principal investigator for ARPA SBIR Phase II contract involving the design of CAD tools for asynchronous VLSI synthesis; design of a demonstration circuit; implementation of a VHDL front-end for use with CAD tools.

Designed software and a CPLD-based circuit to use the PCI bus to interface with a reconfigurable computer board; wrote software to interface an automatic measurement/waveform generation board with a PC.

Postdoctoral Scholar, Caltech 1995–1996

Development of a practical VLSI design language; implementation of the language as a generic front-end for use with CAD tools.

Participation in the design of an asynchronous MIPS microprocessor (a project of A.J. Martin's group).

Research Assistant, Caltech 1987–1995

Developed a formal semantics for VLSI design languages; proved the correctness of program transformations to achieve compilation of asynchronous (unclocked) circuits.

Designed a concurrent programming language, "multicomputer C," which includes communication between sequential processes, dynamic process creation, channel selection, process mapping, etc..