

Tom Haber

Principal Member of
Technical Staff

CONTACT

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SKILLS

Programming

C/C++	●●●●●
Python	●●●●●
Julia	●●●●●
R	●●●●●
SystemVerilog	●●●●●

Languages

English	●●●●●
Dutch	●●●●●
French	●●●●●
German	●●●●●

INTERESTS

Problem solving

High-performance computing

Programming

Simulation

(Computational) Statistics

Machine Learning

EDUCATION

2004 - 2015 **Ph.D. Computer Science** 📍 Hasselt, Belgium
Hasselt University
Acquiring the World through Photographs
Advisor: *Philippe Bekaert*

2000 - 2004 **Licentiate of Applied Computer Sciences** 📍 Hasselt, Belgium
Limburgs Universitair Centrum

RESEARCH EXPERIENCE

2022-present **Principal Member of Technical Staff** 📍 Leuven, Belgium
imec
Building the future of HPC and AI systems at imec. Looking at the full-stack solution from System Architecture, run-time, CPU, accelerator and interconnect solutions up to software and applications. Technical co-leader for architectural modelling/simulation

2019-2021 **Post-doctoral Researcher** 📍 Leuven, Belgium
Hasselt University + imec
(privacy-preserving) Machine learning and AI with application in material-science (for semiconductor tool vendor) and single cell sequencing (FlandersAI).

2018-2019 **Post-doctoral Researcher** 📍 Hasselt, Belgium
Hasselt University + imec
Continued development on bio-statistics software for bayesian mixed effect modeling in pharmacometrics (J&J OO project) and latent-class mixture models (EPAD project). Pitch for imec innovation project

2014-2018 **Post-doctoral Researcher** 📍 Leuven, Belgium
Exascience life lab
Worked on scalable bio-statistics (bayesian inference, mixed effect models), machine learning, parallel computing and optimization.

2010-2014 **Researcher - Member of steering committee** 📍 Leuven, Belgium
Exascience lab, Intel labs Europe
Worked on In-situ visualization algorithms for use on exascale computing platforms including multi-core resilient algorithms and reduction algorithms under load imbalance.

2008-2010 **Researcher** 📍 Hasselt, Belgium
Hasselt University
Developed a real-time depth capture system for broadcasting using a camera-projector system. This resulted in a compact set-up that produces depth estimates and confidence values at 50Hz.

2007 - 2008 **Ph.D. Internship** 📍 Saarbrücken, Germany
Max-Planck-Institut Informatik
Worked on project "Relighting Objects from Image Collections"

TEACHING

2004-present	Copromotor of two Ph.D. students Hasselt University • Balazs Nemeth: Message Passing Computational Methods with Pharmacometrics Application • Thomas Kovac: Heterogeneous computing in epidemiological modelling (undefended)
2019-present	Master Inf - Machine Learning and deep Learning (Lecturer) Hasselt University Created own course with lectures, exercises and projects.
2006-2010	Master Inf - Advanced Computer Graphics (Assistant) Hasselt University
2004-2020	2e Bach Inf - Operating Systems (Assistant) Hasselt University
2004-present	Copromotor/supervisor Hasselt University Several bachelor and master thesis student.

RESEARCH INTERESTS

- Statistical modelling and computational science
- System/physical/biological simulation
- Combination of machine learning and statistical/physical/biological modelling
- High-performance parallel algorithms
- Programming languages for high-performance computing
- Design and evaluation of hardware accelerators

COURSES

Oct 23-26 2023	SystemVerilog for New Designers This course teaches practical project readiness for FPGA or ASIC design, including RTL synthesis, block-level test benches, and FPGA design flows.	 Leuven, Belgium
Nov 6-8 2023	Xilinx - Vivado FPGA Design Essentials This course covered all aspects of FPGA design: from architectural considerations, to detailed timing constraints and static-timing-analysis (STA), to individual designer productivity	 Leuven, Belgium

PUBLICATIONS

A selection of publications is presented on the next page. For a full list of publications, please check <https://scholar.google.com/citations?user=tTjcVeMAAAAJ>

Improving the Runtime Performance of Non-linear Mixed-Effects Model Estimation

 **Tom Haber** and Frank Van Reeth

 2020  European Conference on Parallel Processing

Automatic Parallelization of Probabilistic Models with Varying Load Imbalance

 Balazs Nemeth, **Tom Haber**, Jori Liesenborgs and Wim Lamotte

 2020  IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGRID)

Heterogeneous computing for epidemiological model fitting and simulation

 Thomas Kovac, **Tom Haber**, Frank Van Reeth and Niel Hens

 2018  BMC Bioinformatics

Relaxing Scalability Limits with Speculative Parallelism in Sequential Monte Carlo

 Balazs Nemeth, **Tom Haber**, Jori Liesenborgs and Wim Lamotte

 2018  IEEE International Conference on Cluster Computing (CLUSTER)

Fast derivatives of likelihood functionals for ODE based models using adjoint-state method

 Valdemar Melicher, **Tom Haber** and Wim Vanroose

 2017  Computational Statistics

Relighting objects from image collections

 **Tom Haber**, Christian Fuchs, Philippe Bekaert, Hans-Peter Seidel, Michael Goesele and Hendrik P. A. Lensch

 2009  IEEE Conference on Computer Vision and Pattern Recognition (CVPR)