Carl Stefan Engblom
ORCID: 0000-0002-3614-1732
Google Scholar: M368s5AAAAAJ
Researcher ID: T-8559-2018
URL: www.stefanengblom.org

CONTACT INFORMATION

Div of Scientific Computing,
Dept of Information Technology,
Uppsala University
The Ångström Laboratory,
Box 337, SE-751 05,
Uppsala, Sweden

Office: +46-18-471 27 54
Fax: +46-18-51 19 25
Cell: +46-70-620 62 20
Room: 106144
E-mail: stefane@it.uu.se
Web: www.stefanengblom.org

POSITION

Professor in Scientific Computing at the Dept of IT, Uppsala University:
- Program Chair, Applied Scientific Computing (since April 1st, 2025)
- Director, eSSENCE (since Feb 20th, 2024)

Approved to the SciLifeLab Group Leader program (Feb 11, 2025).

Appointed to Distinguished university teacher at the Faculty of Science and Technology, Uppsala University (December 15th, 2017).

Appointed to Docent in *Scientific Computing with a specialization in Numerical Analysis* at the Faculty of Science and Technology, Uppsala University (April 18th, 2013).

SUPERVISION

- Current PhD-students:
  - Main supervisor of Vaishnavi Divya Shridar (Jan 2024–), *Towards model-based analysis in wastewater epidemiology: the specifics of antimicrobial resistance*
  - Main supervisor of Gesina Menz (Jan 2022–), *Computational modeling of populations of cells*
  - Main supervisor of Erik Blom (Sep 2021–), *Scalable computational modeling of living cells*
  - Co-supervisor of Anna Frigge (2021–), Alfred Andersson (2020–), Helena Andersson (2020–)
- Previous PhD-students:
  - Main supervisor of Robin Marin (2017–22), PhD thesis *Computational Modeling, Parameterization, and Evaluation of the spread of Diseases* (2022).
  - Main supervisor of Jing Liu (2012–20), PhD thesis *Towards Fast and Robust Algorithms in Flash X-ray single particle Imaging* (2020).
  - Main supervisor of Pavol Bauer (2012–17), PhD thesis *Parallelism in Event-Based Computations with Applications in Biology* (2017).

Licentiate thesis: *Parallelism and Efficiency in Discrete-Event Simulation* (2015).

- Co-supervisor of Stefan Widgren (2011–16), PhD thesis *Studies on verotoxigenic Escherichia coli O157 in Swedish cattle: from sampling to disease spread modelling* (2016).
- Co-supervisor of Lina Meinecke (2011–16), PhD thesis *Stochastic simulation of multiscale reaction-diffusion models via first exit times* (2016).

- Postdocs: Stefan Widgren (2017–18), Jonathan Bull (2016–2017), Doghonay Arjmand (2016–17), Emilie Blanc (2014–2015).

- MSc/BSc-theses:
  - MSc-thesis *Approximate Bayesian Computation for Data-Driven Epidemiological Models* by Christoph Nötzli (2023, Data Science)
  - MSc-thesis *Investigating the Estimation of the infection rate and the fraction of infections leading to death in epidemiological simulation* by Jakob Gölén (2023, Engineering Physics)
  - MSc-thesis *Cell-sorting in grid-based time-continuous cell population models* by Joel Olofsson (2022, Engineering Physics)
  - BSc-thesis *Computational modelling of quorum sensing using cascade delay* by Nils Axelsson and David Mårsäter (2022, Engineering Physics)
  - BSc-thesis *Tumörspridning med artificiell evolution: Warburgeffekten och cancercellers metabolism* by David Näsström and Marcus Medhage (2022, Engineering Physics)
  - MSc-thesis *Towards Hybrid Modeling of Avascular Tumours* by Erik Blom (2021, Computational Science)
  - MSc-thesis *Performance of Adaptive Fast Multipole Method in three dimensions for time-dependent problems* by Zain Nawas (2021, Computational Science)
  - BSc-thesis *Comparing priority queues with support for priority updates at arbitrary indexes* by Erik Granberg (2021, Computer Science)
  - BSc-thesis *Implementing multithreading for a fast multipole method using OpenMP* by Ludwig Ridderstolpe (2021, Computer Science)
  - MSc-thesis *Heterogeneous Multiscale Method in Markovian event-based models — With applications in tumor modeling* by An Khang Bui (2020, Numerische Mechanik, Technical University of Munich)
  - BSc-thesis *A parallel implementation of spatially distributed stochastic chemical kinetics* by Pontus Melin (2020, Computer Science)

Teaching

- As the teacher responsible at the Department of Information technology, Uppsala University:
  - PhD-level course (module): *Foundations of probabilistic modeling* (2023). Developed by myself.
  - PhD-level course: *Numerical Functional Analysis* (2014, 2019, 2022). This course was developed by myself.

- PhD-level course: *Numerical methods in stochastic modeling and simulations* (2016, 2020). This course was developed by myself.
- Advanced-level course: *Project course in Computational Science* (2023, 2024).
- Advanced-level course: *Advanced Numerical Methods* (2016, 2017), co-developed this course.
- Advanced-level course: *Applied Finite Element Methods* (2016), co-developed this course.
- Advanced-level course: *Scientific computing III* (2021, 2022).
- Basic-level course: *Scientific computing I* (2020), *Scientific computing II* (every year 2015–2019, 2023).

TALKS

Bayesian Models for National-Scale Disease Spread: From Cattle to COVID-19 at the Upp-Upp conference in Statistics, Uppsala, Sweden, (2025).

Toward Bayesian models of growing tumors at the ENUMATH conference, Lisbon, Portugal (2023).

Key speaker at the Hausdorff School on *Inverse Problems for Multi-scale Models*, University of Bonn, Germany, Aug 22–26 (2022).

Bayesian prediction of COVID-19 spread for informed decision making: Practical experiences from Uppsala at the MIT IDSS workshop Paths from Research to Impact: A Year of Collaborative Research on COVID-19 (2021).

Computational Bayesian modeling for disease control invited lecture given online in the Applied Mathematics Seminars-series at the University of Warwick (2020).

Computational modeling of populations of cells: applications to tumor behavior invited guest-lecture in the course Advanced Cancer Biology, Uppsala, Sweden (2020, 2021, 2022).

ORGANIZING

- Organizer of the minisymposium *The mathematics of pathology: quantitative methods* with Fred Vermolen at the ENUMATH conference September 1–5, 2025, Heidelberg, Germany.

- Organizer of the DDLS Workshop *Infectious disease epidemiology: surveillance, forecasting and modelling* with Tove Fall, Tom Britton and Laura Carroll, at Stockholm university, May 5–6th, 2025.

- Organizer of a mini workshop entitled *Computational Fusion and Plasma* with Murtazo Nazarov at Uppsala university, September 5th, 2024.

- Organizer of the minisymposium *Mathematical and computational models of cells, cell-populations, and applications thereof* with Fred Vermolen at the ENUMATH conference September 4–8, 2023, Lisbon, Portugal.

- Organizer of the workshop *Surrounded by data, starved for insight*, August 18, 2022, Uppsala university.

- Co-organizer of the workshop *Spatially distributed stochastic dynamical systems in biology; numerical methods, mathematical analysis, and biological models*, June 20–24, 2016, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.

AFFILIATION Member of *SIAM*.