Curriculum vitae

Anders Logg

Full Professor of Computational Mathematics, Chalmers University of Technology

Bio

Date of birth:	January 7, 1976
Place of birth:	Mölndal, Sweden
Citizenship:	Swedish

Present positions

(2013–) **Full Professor of Computational Mathematics**
Chalmers University of Technology, Sweden.

Director of Chalmers Area of Advance Building Futures.

Leader of Excellence Profile Virtual Cities.

(2013–) **Scientific Advisor**, Fraunhofer-Chalmers Centre, Sweden.

Previous positions

(2013–2017) **Scientific Advisor**, Simula Research Laboratory, Norway.
(2011–2013) **Senior Research Scientist**, Simula Research Laboratory, Norway.
(2006–2013) **Associate Professor**, University of Oslo, Norway.
(2006–2011) **Research Scientist**, Simula Research Laboratory, Norway.

Higher education degrees

(2001) **Lic.Eng. in Applied Mathematics**
Chalmers University of Technology. Advisor: Prof. Claes Johnson.

(1999) **MSc in Engineering Physics**
Chalmers University of Technology. Advisor: Prof. Claes Johnson.

Doctoral degree

(2004) **PhD in Applied Mathematics**
Chalmers University of Technology. Advisors: Prof. C. Johnson, Prof. K. Eriksson.

Postdoctoral positions

(2004–2006) **Research Assistant Professor**
Toyota Technological Institute at Chicago, USA.

Docent level

(2010) **Docent in Applied Mathematics**
Chalmers University of Technology, Sweden.

Supervision (PhD students and postdocs)

(2016–)	Robert Forslund (PhD, co-advisor).
(2015–)	Carl Lundholm (PhD, main advisor).
(2014–)	Niklas Ericsson (PhD, co-advisor).
(2011–)	Benjamin Kehlet (PhD, main advisor).
(2014–2016)	Matteo Molteni (PhD, co-advisor).
(2014–2017)	Frida Svelander (Lic, main advisor).
(2009–2012)	André Massing (PhD, main advisor).
(2008–2011)	Kristian Valen-Sendstad (PhD, co-advisor).
(2008–2011)	Kristoffer Selim (PhD, main advisor).
(2014-2017)	August Johansson (Postdoc).
(2012-2013)	André Massing (Postdoc).
(2009-2010)	Marie E. Rognes (Postdoc).
(2008-2010)	Harish Narayanan (Postdoc).

Research grants

(2015)	**NordForsk / Nordic Council of Ministers** project grant (0.6 MSEK), main applicant.
(2014)	**Chalmers Grant for Course Development** project grant (0.6 MSEK), co-applicant.
(2014)	**NordForsk / Nordic Council of Ministers** project grant (4 MSEK), co-applicant.
(2014)	**Swedish Reseach Council (VR)** project grant (3.4 MSEK).
(2010)	**Norwegian Ministry of Education and Research** PhD project grant.
(2007)	**Research Council of Norway** project grant (10 MNOK) / **Outstanding Young Investigator Grant**.

Professional activities

- **Director** of **Swedish Network for Mathematics in Industry** (2014–).
- **Council member** of **EMS Applied Mathematics Committee** (2015–2018).
- **Council member** of **Swedish National Committee for Mathematics** (2015–2017).
- **Head of unit** for Computational Mathematics and Numerical Analysis (2014–2016).
- **Co-founder and core developer of FEniCS**, a free/open-source scientific software project, including the packages DOLFIN, FFC, UFC, UFL, and CBC.Solve (`http://fenicsproject.org/`).
- **Group leader** for the *Automated and Distributed Computing* research group at Simula Research Laboratory, Norway (2010–2012).
- **Project leader** for three research projects at Simula Research Laboratory (2007-2013): *Computational Middleware*, *Robust Solvers*, and *Automation of Error Control with Application to Fluid-Structure Interaction in Biomedicine*.
- **Organizer of workshops and conferences**: *FEniCS'05: Automated Computational Mathematical Modeling* (2005), *Finite Element Methods for Fluids and Fluid-Structure Interaction* (2008), *FEniCS'09: Scientific Computing in the New Millennium* (2009), *Finite Element Software Development* at ENUMATH (2009), *Automated Computing* at ICNAAM (2010), *Automated Solution of Differential Equations* at SIAM CSE (2011), *Automation of Computational Modeling by Advanced Software Tools and Techniques* at ECCOMAS (2012), *FEniCS'12: High-Performance PDE Frameworks for Modern Architectures* (2012), *Software in CSE* at SIAM CSE (2013), *Fixed-Grid Methods and Applications to Multi-Physics and Domain Bridging Problems* at SIAM CSE (2013), *26:th Nordic Seminar on Computational Mechanics* (**conference chair**, 2013), *Automation of Computational Modeling by Advanced Software Tools and Techniques* at the 11th. World Congress on Computational Mechanics (2014), *Methods for Cut and Composite Meshes: Theory, Algorithms and Applications* at the 11th. World Congress on Computational Mechanics (2014), ***SIAM CSE*** (member of organizing committee, 2015), *PDESoft* (member of scientific committee, 2016), *29:th Nordic Seminar on Computational Mechanics* (member of organizing committee, 2016).
- **Invited talks** (selection): *Workshop on Data Structures for Finite Element and Finite Volume Computations* (Freie Universität Berlin, 2008), *Opportunities and Challenges in Computational Geodynamics* (Caltech, 2009), *The 23rd Chemnitz FEM Symposium* (Chemnitz, 2010, keynote speaker),

EuroSciPy 2011 / Python in Physics (Ecole normale supérieure, 2011), *PDESoft 2012* (Münster 2012, invited speaker), *FEniCS 2015* (London 2015, keynote speaker), *ESCO 2016* (Pilsen 2016, keynote speaker), *FEniCS 2016* (Oslo 2016, keynote speaker), *SmartGeometry 2016* (Gothenburg 2016, keynote speaker), *International Conference on Computational Science and Engineering* (Oslo 2017, keynote speaker).

- **Editor** of Archive of Numerical Software, **guest editor** of SISC special issue on CSE Software and Big Data (2015).
- **Referee** for *SIAM Review*, *SIAM Journal on Scientific Computing*, *SIAM Journal on Numerical Analysis*, *ACM Transactions on Mathematical Software*, *BIT Numerical Mathematics*, *Journal of Computational and Applied Mathematics*, *Journal of Computational Physics*, *IMA Journal of Numerical Analysis*, *Simulation Modelling Practice and Theory*, *Scientific Programming*, *Bulletin of the Iranian Mathematical Society*.
- **Recipient** of teaching award *Gyllene pekpinnen* at Chalmers 2014, 2015 and 2016, finalist for Chalmers Pedagogical Prize (2014).
- **Opponent** and chairman of PhD defense committees in Norway and Sweden.
- Member of the **Programme Council** for the Applied Physics program at Chalmers (2013–).
- Creator of an exhibition of computational mathematics/physics at the Universeum science center.
- Author of several articles on computational mathematics at the Swedish science portal forskning.se, author of several book chapters and articles on popular science.
- Lecturer in several courses at Chalmers University of Technology (2002–2004, 2013–), lecturer in several courses at the University of Oslo (2006-2013), lecturer at the Jyväskylä Summer School (2013), lecturer at the Winter School in Computational Mathematics, Geilo, Norway (2006, 2012).
- Finalist for the ECCOMAS **PhD Thesis Award**, nominated by the NoACM (Nordic Association for Computational Mechanics), one of 18 European finalists (2005).
- Recipient of the **John Ericsson Medal**, awarded to students with the best grade average (4.97/5.0 = 99.4%) at Chalmers University of Technology, Sweden (1999).

Selected publications

[1] K. Eriksson, C. Johnson and A. Logg. Explicit Time-Stepping for Stiff ODEs. *SIAM J. Sci. Comput.*, vol. 25(4), pp. 1142–1157, 2003.

[2] R. C. Kirby and A. Logg. A Compiler for Variational Forms. *ACM Transactions on Mathematical Software*, vol. 32(3), pp. 417–444, 2006.

[3] A. Logg. Automating the Finite Element Method. *Archives of Computational Methods in Engineering*, vol. 14(2), pp. 93–138, 2007.

[4] A. Logg. Efficient Representation of Computational Meshes. *International Journal of Computational Science and Engineering*, vol. 4(4), pp. 283–295, 2009.

[5] A. Logg and G. N. Wells. DOLFIN: Automated Finite Element Computing. *ACM Transactions on Mathematical Software*, vol. 37(2), 2010.

[6] A. Logg, K.-A. Mardal, G. N. Wells et al.. Automated Solution of Differential Equations by the Finite Element Method, *Springer*, 2012.

[7] M. E. Rognes and A. Logg. Automated Goal-Oriented Error Control I: Stationary Variational Problems. *SIAM Journal on Scientific Computing*, vol. 35(3), pp. C173–C193, 2013.

[8] D. N. Arnold and A. Logg. Periodic Table of the Finite Elements. *SIAM News*, 2014.

[9] A. Massing, M. G. Larson, A. Logg and M. E. Rognes. A Nitsche-Based Cut Finite Element Method for a Fluid–Structure Interaction Problem. *Communications in Applied Mathematics and Computational Science*, vol. 10(2), pp. 97-120, 2015.

[10] A. Johansson, M. G. Larson and A. Logg. High Order Cut Finite Element Methods for the Stokes Problem. *Advanced Modeling and Simulation in Engineering Sciences*, vol. 2(24), 2015.