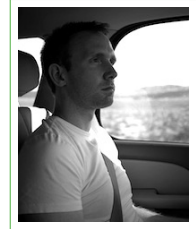


# Fredrik Kjolstad

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*Curious Computer Science Researcher and Software Engineer*

## Education

- 2011–present **Ph.D. Computer Science 5th year**, *Massachusetts Institute of Technology*.  
Research new programming models and compiler techniques for performance computing. Advised by Saman Amarasinghe.
- 2009–2011 **M.S. Computer Science**, *University of Illinois at Urbana-Champaign*.  
Parallel and High Performance Computing. Advised by Marc Snir.  
Thesis: *Refactoring Transformations for Maintainable, Scalable and Efficient Parallelism*.  
GPA 3.9/4.0.
- 2002–2005 **Bachelor of Engineering, Computer Science**, *Gjøvik University College*.  
Bachelor project: *Stopmotion*. GPA 4.6/5.0. One semester at Edith Cowan University in Perth, Australia (GPA 89/100).

## Experience

- Summer 2016 **Research Intern**, *Creative Technology Labs, Adobe*.  
Worked on extensions to the Simit programming language for optimization-based mesh deformation
- 2007–2009 **Graphics Software Engineer**, *Media Processing Division, ARM Ltd*.  
Developed SDK Tools and OpenGL ES 1.1/2.0 3D Graphics Drivers for the ARM Mali GPUs
- 2006 **Programmer**, *Accenture Technology Solutions*.  
Designed Java web applications on a large project for the Norwegian government
- 2005–2006 **Engineering Soldier**, *Norwegian Army*.  
Mandatory military service in the Norwegian Engineering Battalion
- Summer 2005 **Tutor**, *Gjøvik University College*.  
Full time summer course in High School Mathematics and Physics (2MX/1FY)
- Fall 2003 and 2004 **Teaching Assistant**, *Gjøvik University College*.  
Mathematics 10 (Calculus 1)
- Fall 2003 **Teaching Assistant**, *Gjøvik University College*.  
Fundamental Programming (Introduction to Programming)

## Awards

- 2016 **Adobe Fellowship**.
- 2011 **Best Poster Award UIUC Grad Expo**, University of Illinois at Urbana-Champaign  
Spring Grad Expo Outstanding Poster Presentation Award.

- 2006 **Rosing Award**, Award for best national IT-related student work from the Norwegian Computer Association for my bachelor project.
- 2005 **Eureka Award**, Award for best bachelor project at Gjøvik University College.

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## Publications

- TOG 2016 **Why New Programming Languages for Simulation?**, Gilbert Louis Bernstein and *Fredrik Kjolstad*, Transactions on Graphics.
- TOG 2016 **Simit: A Language for Physical Simulation**, *Fredrik Kjolstad*, Shoaib Kamil, Jonathan Ragan-Kelley, David I.W. Levin, Shinjiro Sueda, Desai Chen, Etienne Vouga, Danny M. Kaufman, Gurtej Kanwar, Wojciech Matusik and Saman Amarasinghe, Transactions on Graphics presented at SIGGRAPH 2016.
- EuroMPI 2013 **Packing MPI Datatypes using Online Compilation and Code Specialization**, Timo Schneider, *Fredrik Kjolstad* and Torsten Hoefler, 20<sup>th</sup> European MPI Users' Group Meeting.  
Best Paper Award.
- PPoPP 2012 **Automatic Datatype Generation and Optimization**, *Fredrik Kjolstad*, Torsten Hoefler and Marc Snir, 17<sup>th</sup> ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (poster paper).
- ICSE 2011 **Transformation for Class Immutability**, *Fredrik Kjolstad*, Danny Dig, Gabriel Acevedo and Marc Snir, 33<sup>rd</sup> International Conference on Software Engineering.  
Acceptance ratio: 14% (62/441)
- CAP 2010 **Bringing the HPC Programmer's IDE into the 21st Century through Refactoring**, *Fredrik Kjolstad*, Danny Dig and Marc Snir, SPLASH 2010 Workshop on Concurrency for the Application Programmer.
- ParaPloP 2010 **Ghost Cell Pattern**, *Fredrik Kjolstad* and Marc Snir, 2<sup>nd</sup> Annual Workshop on Parallel Programming Patterns.

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## Invited Talks and Lectures

- 2017-2018 **The Tensor Algebra Compiler**, Microsoft Research, University of Illinois, UC Berkeley, Google Brain, Stanford, Facebook AI, University of Washington, Nvidia, Adobe Research, IAP MIT Cloud Workshop, Guest Lectore in MIT 6.S898.
- 2016 **Simit: A Language for Computing on Sparse Systems when Performance Matters**, Microsoft Research, Intel Research.
- Nov 2014 **Graphs, Matrices, and Compilers**, Guest Lecture in Harvard CS207.
- April 2011 **Transformation for Class Immutability**, UPCRC Illinois Summit.
- October 2008 **Performance Optimization of Embedded 3D Graphics Applications**, ARM Developers' Conference, Santa Clara.

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## Selected Service

- 2017 **Artifact Evaluation Committee Member**, 45th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2018).
- 2017 **Invited Reviewer**, ACM Transactions on Graphics (TOG).

- 2017 **Invited Reviewer**, IEEE Transactions on Parallel and Distributed Systems (TPDS).
- 2012, 2013 **Organizer**, 3<sup>rd</sup> and 4<sup>th</sup> Annual MIT CSAIL PL Offsite Retreat with 6/7 CSAIL professors and their research groups.
- 2010 **Book Review**, Parallel Programming with Microsoft .NET – Design Patterns for Decomposition and Coordination on Multicore Architectures.
- 2005-2006 **Platoon Representative**, Elected representative for the soldiers in my platoon.