Victor Lawrence Minden

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Education

Stanford University, Stanford, CA
Ph.D. in Computational and Mathematical Engineering, expected 2017
Thesis area: fast algorithms for scientific computing
Thesis Advisor: Lexing Ying

Tufts University, Medford, MA
B.S. in Electrical Engineering and Mathematics, 2012
Graduated *summa cum laude* with highest thesis honors
Thesis title: *Improved Iterative Methods for NAPL Transport Through Porous Media*
Thesis Advisor: Scott MacLachlan

Research Experience

Lawrence Berkeley National Laboratory, Berkeley, CA
Research Associate, Summer 2014

- Worked with the applied numerical algorithms group under Phil Colella
- Developed a novel algorithm for time-stepping constant-coefficient hyperbolic equations with rigorous consistency and stability results

Lawrence Livermore National Laboratory, Livermore, CA
Intern with Cyber Defenders, Summer 2012

- Worked with the eigensolvers group under Van Henson
- Analyzed spectral clustering techniques for network applications

National Security Agency, Fort Meade, MD
Intern with the Director's Summer Program, Summer 2011

- Developed algorithms in MATLAB for temporal graph analysis using novel clustering methods
- Implemented spectral graph theoretic and tensor analytic methods for investigating trends in dynamic relational data

Argonne National Laboratory, Argonne, IL
Intern, Summer 2010, Research Aide, 2010-2011

- Worked with the Portable, Extensible Toolkit for Scientific Computation (PETSc) group under Barry Smith
- Contributed GPU parallelization capabilities to PETSc, a C/C++ software library for high-performance linear algebra and scientific computation

Teaching Experience

CME Refresher Course: Linear Algebra, Stanford University
Instructor, September 2014

Projects in Applied and Computational Mathematics, Stanford University
Student Mentor, Winter 2013

Discrete Mathematics, Tufts University
Teaching Assistant, Spring 2011

Assorted Mathematics / Computer Science, Tufts University
Tutor with the Academic Resource Center, 2009-2011

Programming Skills

C, C++, Python, MATLAB, Julia, MPI, OpenMP, LaTeX

Papers

V. Minden, A. Damle, K. L. Ho, and L. Ying, **Fast Spatial Gaussian Process Maximum Likelihood Estimation via Skeletonization Factorizations**, submitted.

B. Lo, *V. Minden*, and P. Colella, **A Real-Space Green's Function Method for the Numerical Solution of Maxwell's Equations**, Communications in Applied Mathematics and Computational Science 11-2 (2016), pp. 143-170.

V. Minden, A. Damle, K. L. Ho, and L. Ying, **A Technique for Updating Hierarchical Skeletonization-Based Factorizations of Integral Operators**, Multiscale Model. Simul. 14-1 (2016), pp. 42-64.

V. Minden, C. Youn, and U. A. Khan, **A Distributed Self-Clustering Algorithm for Autonomous Multi-Agent Systems**, in the Proceedings of the 50th Annual Allerton Conference on Communication, Control and Computing, Monticello, IL, Oct. 2012.

V. Minden, B. Smith, and M. G. Knepley, **Preliminary Implementation of PETSc Using GPUs**, in the Proceedings of the 2010 International Workshop of GPU Solutions to Multiscale Problems in Science and Engineering, Springer, 2011.

Talks and Posters

DOE CSGF Annual Program Review, Arlington, VA 2016
SIAM Annual Meeting, Boston, MA 2016
SIAM Conference on Uncertainty Quantification, Lausanne, CHE 2016
Bay Area Scientific Computing Day, Berkeley, CA 2015
DOE CSGF Annual Program Review, Arlington, VA 2015
Gene Golub SIAM Summer School, Delphi, GRC 2015
ICME Student Seminar, Stanford, CA 2014
DOE CSGF Annual Program Review, Arlington, VA 2014
SIAM Annual Meeting, Chicago, IL 2014
DOE CSGF Annual Program Review, Arlington, VA 2013
Allerton CCC, Monticello, IL 2012
LLNL Student Poster Session, Livermore, CA 2012
IDA/CCS Student Presentation, Bowie, MD 2011
Tufts SIAM Student Seminar, Medford, MA 2010

Academic Awards

DOE Computational Science Graduate Fellowship 2012
Stanford Graduate Fellowship (deferred) 2012
NSF Graduate Research Fellowship (declined) 2012
Alpha Xi Delta Prize Scholarship, Tufts University 2012
Marshall Hochhauser Prize, Tufts University 2012
Eta Kappa Nu ECE Honor Society, Tufts University 2011
Tau Beta Pi Engineering Honor Society, Tufts University 2011
Student Chapter Certificate of Recognition, SIAM 2011
Honorable Mention (with S. Bidwell, L. Clegg), COMAP MCM 2011
INFORMS Prize (with D. Brady, L. Clegg), COMAP MCM 2010
Outstanding Winner (with D. Brady, L. Clegg), COMAP MCM 2010

Other Activities

C^2: Computational Consulting, Stanford University
Consultant, 2013-, President, 2014-2016

EDGE Student Mentorship Program, Stanford University
Student Mentor, 2015-