

■ VICTOR LAWRENCE MINDEN ■

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EDUCATION

Stanford University, Stanford, CA
Ph.D. & M.S. in Computational and Mathematical Engineering, 2017
Thesis title: *Data-sparse Algorithms for Structured Matrices*

Tufts University, Medford, MA
B.S. in Electrical Engineering and Mathematics, 2012
Graduated *summa cum laude* with highest thesis honors

EXPERIENCE

Google, Cambridge, MA
Software Engineer, September 2018 – present
• Work on data analytics and infrastructure for Hotels and Travel.

Flatiron Institute, New York, NY
Research Fellow, computational neuroscience group, September 2017 – August 2018
• Developed neurally plausible learning algorithms for online dimensionality reduction

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

Argonne National Laboratory, Argonne, IL
Intern, Summer 2010, Research Aide, 2010-2011
• Contributed GPU parallelization capabilities to PETSc, a C/C++ software library for high-performance linear algebra and scientific computation

RELEVANT COURSEWORK

statistical learning theory, convex optimization, stochastic processes, large-scale optimization, geometric and topological data analysis, modern signal processing, numerical linear algebra, parallel methods in numerical analysis, compiler optimizations, spectral graph theory, advanced topics in scientific computing

PROGRAMMING SKILLS

General Languages
Python, C++, C, Golang, SQL

Specialized
NumPy/SciPy/scikit-learn, MPI, OpenMP, MATLAB, L^AT_EX, CUDA, Julia

CONFERENCE PROCEEDINGS

1. A. Khalilian-Gourtani, M. Tepper, *V. Minden*, and D. B. Chklovskii, **Strip the Stripes: Artifact Detection and Removal for Scanning Electron Microscopy Imaging**, in the Proceedings of the 44th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2019).
2. A. Giovannucci, *V. Minden*, C. Pehlevan, and D. B. Chklovskii, **Efficient Principal Subspace Projection of Streaming Data Through Fast Similarity Matching**, in the Proceedings of the 2018 IEEE International Conference on Big Data.
3. *V. Minden*, C. Pehlevan, and D. B. Chklovskii, **Biologically Plausible Online Principal Component Analysis Without Recurrent Neural Dynamics**, in the Proceedings of the 52nd Asilomar Conference on Signals and Systems.
4. *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.
5. *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.

JOURNAL PUBLICATIONS

1. *V. Minden* and L. Ying, **A Simple Solver for the Fractional Laplacian in Multiple Dimensions**, in review.
2. A. Damle, *V. Minden*, and L. Ying, **Simple, Direct, and Efficient Multi-way Spectral Clustering**, Information and Inference: a Journal of the IMA, 8-1 (2019), pp. 181-203.
3. *V. Minden*, A. Damle, K. L. Ho, and L. Ying, **Fast Spatial Gaussian Process Maximum Likelihood Estimation via Skeletonization Factorizations**, Multiscale Model. Simul. 15-4 (2017), pp. 1584-1611.
4. *V. Minden*, K. L. Ho, A. Damle, and L. Ying, **A Recursive Skeletonization Factorization Based on Strong Admissibility**, Multiscale Model. Simul. 15-2 (2017), pp. 768-796.
5. 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.
6. *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.

RELEVANT ACTIVITIES

C²: Computational Consulting, Stanford University
President (2014-2015) and consultant in mathematics and algorithms, 2013-2017

EDGE Student Mentorship Program, Stanford University
Student mentor to two doctoral students in the Enhancing Diversity in Graduate Education (EDGE) program, 2015-2017

RELEVANT AWARDS

Stanford Graduate Fellowship, Office of Technology Licensing Fellow ... 2016

DOE Computational Science Graduate Fellowship 2012

Eta Kappa Nu ECE Honor Society, Tufts University 2011

Tau Beta Pi Engineering Honor Society, Tufts University 2011