VICTOR LAWRENCE MINDEN

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SELECTED EXPERIENCE

Senior Software Engineer - Tapestry

X, the moonshot factory (formerly Google X)

January 2023 - present Mountain View, CA

- Mathematical modeling, numerical optimization and backend software engineering for X's moonshot for the electric grid.
- Projects relating to optimal power flow and unit commitment (i.e., mixed integer linear programming, stochastic optimization, etc.).

Senior Member of Technical Staff - Compilers

Cerebras Systems

Feb 2021 - January 2023 Remote + Sunnyvale, CA

- Increased the efficiency and generalizability of automatic code generation in our machine learning (ML) compilation stack to expand the range of supported deep learning models on our custom ML accelerator.
- Led a weekly forum on software architecture and development practices to tackle large, cross-cutting concerns in the software organization.
- Managed four direct reports (SWEs) working on code generation.

Senior Algorithms Scientist

PathAI

Oct 2019 – Jan 2021 Boston, MA

- Imaging Research Software Tech Lead, Mar 2020 – Jan 2021.
- Developed and implemented high-performance image processing and optimization algorithms.
- Spearheaded and promoted research team software development practices, including pre-commit hooks, code review, unit testing, version control, and environment management.

Software Engineer

Google

Sep 2018 - Sep 2019 Cambridge, MA

- 80% time: data analytics for the Hotels and Travel teams, where I developed and deployed near real-time anomaly detection and alerting models.
- 20% time: spent with the Operations Research team on improving Google's in-house linear optimization solver (GLOP).

RELEVANT TECHNICAL SKILLS

C++, Python (*numpy / scipy / scikit-learn / skimage / cupy / pytest*), Kotlin, Go, SQL, MPI, CUDA, Git

RELEVANT ACTIVITIES

C^2: Computational Consulting @ Stanford University
Consultant in mathematics and algorithms, 2013-2017 (President, 2014-2015)

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

EDUCATION

Ph.D. & M.S. in Computational and Mathematical Engineering

Stanford University

2012 – 2017 Stanford, CA

- **Doctoral Thesis**: *Data-sparse Algorithms for Structured Matrices*
- **Relevant Coursework**: convex optimization, statistical learning theory, scientific computing, large-scale optimization, topological data analysis, signal processing, parallel numerical analysis, compiler optimizations

B.S. in Electrical Engineering and Mathematics, *summa cum laude*

Tufts University

2008 - 2012 Medford, MA

PUBLICATIONS

7 journal publications and 6 conference publications including:

A. O. Dasdemir, *V. Minden*, and E. S. Magden, **Computational Scaling in Inverse Photonic Design Through Factorization Caching**, Appl. Phys. Lett. 123, 221106 (2023).

V. Minden and L. Ying, **A Simple Solver for the Fractional Laplacian in Multiple Dimensions**, SIAM Journal on Scientific Computing, Vol. 42, Iss. 2 (2020).

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).

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.

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.

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.