SHIGENG SUN

gengyuntx@gmail.com https://shigengsun.github.io (202)-615-5830

EDUCATION

Northwestern University, *McCormick School of Engineering* — Evanston, IL, United States
Ph.D, *Engineering Sciences and Applied Mathematics* — Sept. 2019 - June 2024 (expected)
Advisor: Dr. Jorge Nocedal — GPA: 3.83/4.0 (as of Jan. 2023)

New York University, *Courant Institute of Mathematical Sciences* — New York City, NY, United States
Master of Science, *Mathematics* (with graduate thesis, top 2 / 70) — Aug. 2017 - June 2019
Advisor: Dr. Michael J. Shelley — GPA: 3.87/4.0

The George Washington University, *Columbian College of Arts and Sciences* — Washington, DC, United States
Bachelor of Science, *Mathematics (top of the class, with honors), Economics (with honors)* — Aug. 2013 - June 2017
Advisors: Dr. Svetlana Roudenko, Dr. Yanxiang Zhao — GPA: 3.71/4.0

COMPUTING SKILLS

Programming Languages:	Python, MATLAB, C; Basic knowledge with SQL, R, CUDA
Packages & Tools:	PyTorch, Pandas, scikit-learn, TensorFlow, JAX, LAPACK/LAPACKe, OpenMP
Software & Others:	MS Office, iWork, LaTeX, Mathematica, Maple, Stata,

PAPERS, PREPRINTS AND TECHNICAL REPORTS

S. Sun, R. Byrd, J. Nocedal, *A Globally Convergent Sequential Quadratic Programming Algorithm for Equality Constrained Optimization Problems Under Uncertainties*, Preprint.

S. Sun, J. Nocedal, *A Trust Region Method for the Optimization of Noisy Functions.* Published in *Mathematical Programming* (2023).

S. Sun, Y. Xie, *Stochastic Ratios Tracking Algorithm for Large Scale Machine Learning.* Preprint in review.

S. Sun, J. Nocedal, *An Algorithm for Solving System of Nonlinear Equations with Rank Deficient Jacobians and Inaccuracies.* Preprint to be submitted to *SIAM Journal of Optimization* (2023).

Y. Lou, **S. Sun**, J. Nocedal, *Nonlinear Optimization in the Presence of Noise: Applications, Noise Models and Problem Structure.* Preprint to be submitted to *Optimization Methods and Software* (2023).

S. Sun, R. Byrd, J. Nocedal, *On the Global Convergence of Byrd-Omojokun SQP Method for Equality Constrained Optimization.* Preprint.

S. Sun, S. Fürthauer, M. J. Shelley, *Instabilities in Active Contracting Networks*. Thesis, Technical Report (2019).

S. Sun, S. Roudenko, *Modeling The International Links Between Interbank Offered Rates Among Different Markets Through A Wavelet Analysis Approach*. Technical Report (2017).

S. Sun, Y. Zhao, *Periodic Migration in a Physical Model of 1D Cell on Micro-patterns*. Technical Report (2017).

INDUSTRY RESEARCH EXPERIENCE

Virtu Financial — New York City, NY, United States
Quantitive Strategiest Intern — June. 2023 - Aug. 2023

Amazon AWS AI Labs — Santa Clara, CA, United States
Applied Scientist Intern — Sept. 2023 - Dec. 2023 (exp)

ACADEMIA RESEARCH EXPERIENCE

Prof. Nocedal's Research Group, *Department of IEMS*, Northwestern University — Evanston, IL, United States
Optimization under uncertainties, Optimization in Machine Learning — Sept. 2020-Present

Biophysical Modeling Group, *Flatiron Institute*, Simons Foundation — New York City, NY, United States
Numerical Solution to Large PDE Systems, Computational Fluid Mechanics — Jan. 2018-Aug. 2019

Prof. Zhao's Research Group, Prof. Roudenko's Research Group, *Department of Math*, GWU — Washington, DC
Data and Signal Analysis, Mathematical Finance, Biophysics Simulations — Jan. 2018-Aug. 2019

TEACHING/ SERVICE EXPERIENCE

Center of Optimization and Statistical Learning, Northwestern University — Evanston, IL, United States
Student Administrator — Aug. 2021-Present

Courant Institute of Mathematical Sciences, New York University — New York City, NY , United States
Graduate Faculty Adjunct — Aug. 2017– May 2018

Columbian College of Arts and Sciences, The George Washington University — Washington , DC, United States
Undergraduate Teaching Assistant — Aug. 2016– Jan. 2017

AWARDS AND FELLOWSHIPS

Walter P. Murphy Fellowship — Sept. 2019
Ruggles Undergraduate Mathematics Prize (top of the class in mathematics award) — May. 2017
Data MASTER fellowship by National Science Foundation — Dec. 2015, June 2016

PROFESSIONAL SOCIETIES AND ACTIVITIES

Society for Industrial and Applied Mathematics (SIAM),
Student Member — Aug. 2016- Current

American Mathematical Society (AMS),
Student Member — Aug. 2016- Current

The Institute for Operations Research and the Management Sciences (INFORMS),
Student Member — Sept. 2020- Current

Pi Mu Epsilon Mathematics Honorary Society,
Chapter President — May 2015- May 2017

CONFERENCES AND PRESENTATIONS

INFORMS Conference on Optimization, — Greenville, SC, United States
Session Speaker — Mar. 2022

ACMNTW Conference (Midwest Optimization Conference), — Evanston, IL, United States
Presenter — May 2022

INFORMS Annual Meeting, — Indianapolis, IN, United States
Session Speaker — Oct. 2022

SIAM Conference on Optimization, — Seattle, WA, United States
Session Chair, Session Speaker — May 2023