

SHIGENG SUN

✉ gengyuntx@gmail.com 🔗 <https://shigengsun.github.io>

EDUCATION

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| Northwestern University , <i>McCormick School of Engineering</i> Ph.D, <i>Engineering Sciences and Applied Mathematics</i> Advisor: Dr. Jorge Nocedal | Evanston, IL, United States Sept. 2019 - Sept. 2024 GPA: 3.83/4.0 |
| New York University , <i>Courant Institute of Mathematical Sciences</i> Master of Science, <i>Mathematics</i> (with graduate thesis) Advisor: Dr. Michael J. Shelley | New York City, NY, United States Aug. 2017 - June 2019 GPA: 3.87/4.0 |
| The George Washington University , <i>Columbian College of Arts and Sciences</i> Bachelor of Science, <i>Mathematics (with honors), Economics (with honors)</i> Advisors: Dr. Svetlana Roudenko, Dr. Yanxiang Zhao | Washington, DC, United States Aug. 2013 - June 2017 GPA: 3.71/4.0 |

INDUSTRY EXPERIENCE

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| The D. E. Shaw Group <i>Quantitative Analyst</i> | New York City, NY, United States Oct. 2024 - Present |
| Virtu Financial <i>Quantitative Strategist (Intern)</i> | New York City, NY, United States June. 2023 - Aug. 2023 |
| Amazon AWS AI Labs <i>Applied Scientist (Intern)</i> | Santa Clara, CA, United States Sept. 2023 - Dec. 2023 |

COMPUTING SKILLS

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| 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, L ^A T _E X, Mathematica, Maple, Stata, |

PAPERS, PREPRINTS AND TECHNICAL REPORTS

- S. Sun**, J. Nocedal, *A Trust-Region Algorithm for Noisy Equality Constrained Optimization*, Preprint (2024).
- 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.
- Y. Lou, **S. Sun**, J. Nocedal, *Nonlinear Optimization in the Presence of Noise: Applications, Noise Models and Problem Structure*. Preprint on revision with *SIAM Journal Of Scientific Computing* (2024).
- S. Sun**, 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 (2019).
- S. Sun**, S. Roudenko, *Modeling The International Links Between Interbank Offered Rates Among Different Markets Through A Wavelet Analysis Approach*. Technical Report (2017).

ACADEMIA RESEARCH EXPERIENCE

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| Prof. Nocedal's Research Group , <i>Department of IEMS</i> , Northwestern University <i>Optimization under uncertainties, Optimization in Machine Learning</i> | Evanston, IL, United States Sept. 2020-Present |
| Biophysical Modeling Group , <i>Flatiron Institute</i> , Simons Foundation <i>Numerical Solution to Large PDE Systems, Computational Fluid Mechanics</i> | New York City, NY, United States Jan. 2018-Aug. 2019 |
| Prof. Zhao's Research Group, Prof. Roudenko's Research Group , <i>Department of Math</i> , GWU <i>Data and Signal Analysis, Mathematical Finance, Biophysics Simulations</i> | Washington, DC Jan. 2015-May 2017 |

TEACHING/ SERVICE EXPERIENCE

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| Center of Optimization and Statistical Learning , Northwestern University <i>Student Administrator</i> | Evanston, IL, United States Aug. 2021-Present |
| Courant Institute of Mathematical Sciences , New York University <i>Graduate Faculty Adjunct</i> | New York City, NY , United States Sept. 2017– May 2019 |
| Columbian College of Arts and Sciences , The George Washington University <i>Undergraduate Teaching Assistant</i> | Washington , DC, United States Aug. 2016– Jan. 2017 |

AWARDS AND FELLOWSHIPS

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| 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

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| Society for Industrial and Applied Mathematics (SIAM) , <i>Student Member</i> | Aug. 2016- Current |
| American Mathematical Society (AMS) , <i>Student Member</i> | Aug. 2016- Current |
| The Institute for Operations Research and the Management Sciences (INFORMS) , <i>Student Member</i> | Sept. 2020- Current |
| Pi Mu Epsilon Mathematics Honorary Society , <i>Chapter President</i> | May 2015- May 2017 |

INVITED CONFERENCES AND PRESENTATIONS

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| INFORMS Conference on Optimization , <i>Invited Session Speaker</i> | Greenville, SC, United States Mar. 2022 |
| ACMNTW Conference (Midwest Optimization Conference) , <i>Presenter</i> | Evanston, IL, United States May 2022 |
| INFORMS Annual Meeting , <i>Invited Session Speaker</i> | Indianapolis, IN, United States Oct. 2022 |
| SIAM Conference on Optimization , <i>Session Chair, Invited Session Speaker</i> | Seattle, WA, United States May 2023 |
| INFORMS Conference on Optimization , <i>Invited Session Speaker</i> | Houston, TX, United States Mar. 2024 |