ZEGUAN WU

CONTACT INFORMATION

Lehigh University
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Bethlehem, PA 18015

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EDUCATION

Lehigh University — Bethlehem, PA
Ph.D., Industrial and Systems Engineering — May 2025 (*expected)*
Advisor: Tamás Terlaky & Xiu Yang

Columbia University — New York, NY
M.Sc., Operations Research — Dec 2019

Nanjing University — Nanjing, China
B.Sc., Material Physics — Jul 2018

RESEARCH INTERESTS

Quantum Linear Algebra, Quantum Computing, Optimization, Machine Learning

RESEARCH EXPERIENCE

Los Alamos National Laboratory — Los Alamos, NM
Mentor: Marc Vuffray & Sidhant Misra — 2023 - Present
Topics: Quantum Linear Solvers and Quantum Optimization

Lehigh University — Bethlehem, PA
Department of Industrial & Systems Engineering — 2020 - Present
Advisor: Tamás Terlaky & Xiu Yang
Topics: Optimization and Machine Learning with Quantum Computing

Columbia University — New York, NY
Department of Civil Engineering and Engineering Mechanics — 2019 - 2020
Advisor: Xuan (Sharon) Di
Topics: Bi-level Optimization in Traffic Network Modeling

WORK EXPERIENCE

Lehigh University — Bethlehem, PA
Research Assistant & Teaching Assistant — 2020 - Now

PAPERS UNDER REVIEW

1. "*An Inexact Feasible Interior Point Method for Linear Optimization with High Adaptability to Quantum Computers*", submitted to SIAM-OPT, Mohammadhossein Mohammadisiahroudi, Ramin Fakhimi, **Zeguan Wu**, and Tamás Terlaky.

WORKING PAPERS

1. "*Preconditioned Quantum Interior Point Method for Linear Optimization*", **Zeguan Wu**, Xiu Yang, and Tamás Terlaky.
2. "*An Inexact Feasible Quantum Interior Point Method using Normal Equation System*", Mohammadhossein Mohammadisiahroudi, **Zeguan Wu**, Arielle Carr, and Tamás Terlaky.
3. "*A Quantum Dual Logarithmic Barrier for Linear Optimization*", **Zeguan Wu**, Pouya Sampourmahani, Mohammadhossein Mohammadisiahroudi, and Tamás Terlaky.
4. "*Improvements to Quantum Interior Point Method for Linear Optimization"*, Mohammadhossein Mohammadisiahroudi, **Zeguan Wu**, Brandon Augustino, Arielle Carr, and Tamás Terlaky.

PUBLICATION

1. "*An Inexact Feasible Quantum Interior Point Method for Linearly Constrained Quadratic Optimization*", Entropy, **Zeguan Wu**, Mohammadhossein Mohammadisiahroudi, Brandon Augustino, Xiu Yang, and Tamás Terlaky.
2. "*Quantum-enhanced Regression Analysis Using State-of-the-art QLSAs and QIPMs*", ACM/IEEE Quantum Workshop, Mohammadhossein Mohammadisiahroudi, **Zeguan Wu**, Brandon Augustino, Arielle Carr and Tamás Terlaky.

CONFERENCE

1. "*An Inexact Feasible Quantum Interior Point Method for Linear and Quadratic Optimization*", Talk, INFORMS Annual 2023, Phoenix, AZ.

2. "*An Inexact Feasible Quantum Interior Point Method for Linear and Quadratic Optimization*", Talk, MOPTA 2023, Bethlehem, PA.
3. "*Inexact Feasible Quantum Interior Point Method for Linearly Constrained Quadratic Optimization*", Talk, IISE Annual 2023, New Orleans, LA.
4. "*Inexact Feasible Quantum Interior Point Method for Linearly Constrained Quadratic Optimization*", Talk, Mid-Atlantic NA-Day 2022, Philadelphia, PA.
5. "*Preconditioned Quantum Interior Point Method for Linear Optimization*", Flash Talk, INFORMS Annual 2022, Indianapolis, IN.
6. "*Preconditioned Quantum Interior Point Method for Linear Optimization*", Poster, ICCOPT & MOPTA 2022, Bethlehem, PA.

TEACHING EXPERIENCE

Lehigh University:

2023S ISE 111 Engineering Probability, TA

2022F ISE 406 Introduction to Mathematical Optimization, TA

2022S ISE 305/404 Simulation, TA

2021F ISE 365/465 Applied Data Mining, TA

Others:

2023 Gene Golub SIAM Summer School, Optimization Laboratory Tutorial

ACADEMIC SERVICE

Session Chair, SIAM-NNP Annual, 2023

Session Chair, INFORMS Annual, 2023

Staff, Gene Golub SIAM Summer School, 2023

Session Chair, IISE Annual, 2023

Vice President, Lehigh University INFORMS Student Chapter, 2022-2023

Volunteer, ICCOPT Conference, 2022

Reviewer for EJOR

Member of INFORMS (2022-now), SIAM (2023-now), and IISE (2023-now)

AWARD

Quantum Computing Summer School Fellowship (2023)

Rossin Professional Development Program (2023)

COMPUTER SKILLS Qiskit, Python, MATLAB, C++, GAMS, Cplex, GuRoBi, AMPL

LANGUAGES Mandarin (*native*), English (*professional proficiency*)