GUNEYKAN OZGUL

New York City, NY, USA
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EDUCATION

Pennsylvania State University 2021-2025
Ph.D. in Computer Science & Engineering *State College, PA*

Boston University 2018-2019
Graduate Student in Physics *Boston, MA*

Bogazici University 2012-2018
B.S. in Computer Engineering and Physics (Double Major) *Istanbul, TR*

WORK EXPERIENCE

JPMorgan Chase & Co 2025 - Present
Applied Research Associate Sr *New York City, NY*

JPMorgan Chase & Co Summer 2024
Summer Applied Research Associate *New York City, NY*

The Pennsylvania State University 2023-2025
Graduate Research Assistant *State College, PA*

Pointr Deep Location Company 2019-2021
Senior Research and Development Engineer *Istanbul, TR*

PUBLICATIONS, PATENTS AND PREPRINTS

1. Chakrabarti S., Herman D., Kim J.L., **Ozgul, G.** The quartic gap between quantum and dequantized algorithms for linear algebra is tight. In submission to STOC 2027.
2. Herman D., Chakrabarti S., Kim J.L., **Ozgul, G.** A fully polynomial approximation algorithm for the Sherrington–Kirkpatrick model. In submission to STOC 2027.
3. Augustino B., Chakrabarti S., Fontana E., Herman D., **Ozgul, G.**, Shaydulin R., Sureshbabu S.H., Watkins J. Tight information-theoretic threshold for decoded quantum interferometry with local quantum decoders. In submission to STOC 2027.
4. Shen J., Herman D., **Ozgul, G.**, Seshadri A., Kim J.L., Sureshbabu S.H., Chakrabarti S., Kumar N. From quantum tunneling to classical optimization through instantons. In submission to QIP 2027.
5. Herman D., Watkins J., **Ozgul, G.**, Shen J., Augustino B., Kim J.L., Chakrabarti S. Quantum simulation on Riemannian manifolds. In submission to QIP 2027.
6. **Ozgul, G.**, Chakrabarti S. Super-quadratic quantum speedups for combinatorial optimization via tilted walks. In submission to QIP 2027.
7. Augustino B., Chakrabarti S., Fontana E., Herman D., Kim J.L., **Ozgul, G.**, Voronova N. Near-optimal quantum lower bounds for convex optimization via Fourier rank. In submission to STOC 2027.
8. **Ozgul, G.**, Herman D., Kim J.L., Sureshbabu S.H., Chakrabarti S. Learning rate decay can exponentially accelerate SGD for global optimization of nonconvex functions. 40th Conference on Neural Information Processing Systems (NeurIPS 2026).
9. Augustino B., Herman D., **Ozgul, G.**, Watkins, J., Acharya A., Fontana E., Kim J.L., Chakrabarti S. Quantum speedups for group relaxations of integer linear programs. In submission to *Quantum*.

10. Herman D., **Ozgul, G.**, Apte A., Kim J.L., Prakash A., Shen J., Chakrabarti S. Mechanisms for quantum advantage in global optimization of nonconvex functions. Accepted to *Nature Communications*; 29th Annual Quantum Information Processing Conference (QIP 2026).
11. **Ozgul, G.**, Li, X., Mahdavi, M., and Wang, C. Quantum speedups for sampling and non-convex optimization with stochastic oracles. 21st International Conference on Theory of Quantum Computation, Communication and Cryptography (TQC 2026).
12. **Ozgul, G.** Quantum algorithms for markov chain methods in machine learning and optimization, 2025. Ph.D. Dissertation.
13. Chakrabarti, S., Herman, D., **Ozgul, G.**, Zhu, S., Augustino, B., Hao, T., He, Z., Shaydulin, R., and Pistoia, M. Generalized short path algorithms: Towards super-quadratic speedup over markov chain search for combinatorial optimization. 20th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2025).
14. **Ozgul G.**, Li X., Mahdavi M., and Wang C. Stochastic quantum sampling for non-logconcave distributions and estimating partition functions. Proceedings of the 41st International Conference on Machine Learning, volume 235 of Proceedings of Machine Learning Research, pp. 38953–38982.
15. Akpinar I.E., Akpinar M.C., Tunca C., **Ozgul G**, Isik S., Akhan M.B. Methods and systems of reducing the spread of contagions. US Patent 11,356,810.

PRESENTATIONS/TALKS

1. International Conference on Machine Learning, Vienna, 2024. Stochastic quantum sampling for non-logconcave distributions and estimating partition functions.
2. American Physical Society, Anaheim CA, 2025. Generalized short path algorithms: Towards super-quadratic speedup over markov chain search for combinatorial optimization.
3. American Physical Society, Denver CO, 2026. Mechanisms for quantum advantage in global optimization of nonconvex functions.

SERVICE

1. Reviewer, Journal of Computational and Graphical Statistics, 2025.
2. Reviewer, Quantum Machine Intelligence (Springer Nature), 2025.
3. Reviewer, International Colloquium on Automata, Languages, and Programming (ICALP), 2025.
4. Reviewer, International Conference on Learning Representations (ICLR), 2026.
5. Reviewer, Conference on Neural Information Processing Systems (NeurIPS), 2026.
6. Reviewer, International Conference on Learning Representations (ICLR), 2027.

TEACHING EXPERIENCE

Pennsylvania State University 2021-2023
Graduate Teaching Assistant *State College, PA*

Fall 2021 - CMPSC 497 (Introduction to Quantum Computing)
Spring 2022 - CMPSC 448 (Machine Learning and Algorithmic AI)
Fall 2022 - CMPSC 497 (Introduction to Quantum Computing)
Spring 2023 - CMPSC 448 (Machine Learning and Algorithmic AI)

Boston University 2018-2019
Graduate Teaching Assistant *Boston, MA*

Fall 2018 - PY 211 (Intermediate Electromagnetism)
Spring 2019 - PY 106 (Elementary Electromagnetism)
Summer 2019-1 - PY 212 (Intermediate Mechanics)
Summer 2019-2 - PY 211 (Intermediate Electromagnetism)

TECHNICAL SKILLS

Languages	Turkish (Native), English (Near Native), Spanish (Beginner)
Computer Languages	(Advanced) C/C++, Python, JAVA, Matlab, Mathematica
Tools	Git, LATEX
Frameworks	Qt, Unity, Tensorflow, Pytorch