JEFFREY ZHANG

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AFFILIATIONS

Yale University June 2023-

· Postdoctoral Fellow, Section for Biomedical Informatics and Data Science

Carnegie Mellon University September 2020-May 2023

· Visiting Assistant Professor, Department of Mathematical Sciences

EDUCATION

Princeton University September 2014 - August 2020

· PhD, Operations Research and Financial Engineering
· Advisor: Amir Ali Ahmadi
· Thesis: *Complexity Aspects of Fundamental Questions in Polynomial Optimization*

Available at https://arxiv.org/abs/2008.12170.

Yale University September 2010 - May 2014

· B.A. in Economics and Mathematics (with honors), B.A. in Computer Science.

PUBLICATIONS

1. A. Ahmadi, A. Chaudry, J. Zhang. **Higher-Order Newton Methods with Polynomial Work per Iteration.** *Advances in Mathematics*, Volume 452, 2024. https://doi.org/10.1016/j.aim.2024.109808.

2. J. Zhang, M. Wibert, H. Zhou, X. Peng, Q. Chen, V. Keloth, Y. Hu, R. Zhang, H. Xu, K. Raja. **A Study of Biomedical Relation Extraction Using GPT Models.** *AMIA Jt Summits Transl Sci Proc.* 2024 May 31;2024:391-400. https://pubmed.ncbi.nlm.nih.gov/38827097/.

3. A. A. Ahmadi and J. Zhang. **Complexity aspects of local minima and related notions.** *Advances in Mathematics*, Volume 397, Article 108119, 2022. https://doi.org/10.1016/j.aim.2021.108119.

4. A. A. Ahmadi and J. Zhang. **On the complexity of finding a local minimizer of a quadratic function over a polytope.** *Mathematical Programming*, Volume 195, 783–792, 2022. https://doi.org/10.1007/s10107-021-01714-2.

5. A. A. Ahmadi and J. Zhang. **Semidefinite programming and Nash equilibria in bimatrix games.** *INFORMS Journal on Computing*, Volume 33, No.(2), 607-628, 2021. https://doi.org/10.1287/ijoc.2020.0960.

6. A. A. Ahmadi and J. Zhang. **On the complexity of testing attainment of the optimal value in nonlinear optimization.** *Mathematical Programming*, Volume 184, 221–241, 2020. https://doi.org/10.1007/s10107-019-01411-1.

7. H.P. Zhang, R.S. Legro, J. Zhang, L. Zhang, X. Chen, H. Huang, P.R. Casson, W.D. Schlaff, M.P. Diamond, S.A. Krawetz, C. Coutifaris, R.G. Brzyski, G.M. Christman, N. Santoro, E. Eisenberg, for the Reproductive Medicine Network. **Decision Trees for Identifying Predictors of Treatment Effectiveness in Clinical Trials and Its Application to Ovulation in a Study of Women with Polycystic Ovary Syndrome.** *Human Reproduction*, Volume 25, 2612-21, 2010. `https://www.ncbi.nlm.nih.gov/pubmed/20716558`.

In Progress

8. Q. Xie, Q. Chen, A. Chen, C. Peng, Y. Hu, F. Lin, X. Peng, J. Huang, J. Zhang, V. Keloth, H. He, L. Ohno-Machido, Y. Wu, H. Xu, J. Bian. **Me LLaMA: Foundation Large Language Models for Medical Applications.** `https://arxiv.org/abs/2402.12749`.

9. O. Silina and J. Zhang. **An unregularized third-order Newton method.** `https://arxiv.org/abs/2209.10051`.

TEACHING

MATH 21-393, Operations Research II.

· Fall '20, '21, '22

MATH 21-241, Matrices and Linear Transformations.

· Spring '22, '23

MATH 21-240, Matrix Algebra with Applications.

· Spring '21.

ADVISING

· Olha Silina, Summer '22.

Graduate student. Project: An unregularized third-order Newton method.

· Leslie Li, Summer '21.

Undergraduate student. Project: Semidefinite programming using cubic polynomials.

PRESENTATIONS

Invited Talks

· **University of Chicago**, Committee on Compuational and Applied Mathematics.

Computational and Applied Mathematics Colloquium. March 2022.

· **Carnegie Mellon University**, Tepper Business School.

Operations Research Seminar. December 2021.

· **Polynomial Optimization, Efficiency through Moments and Algebra (POEMA).**

Workshop 3, January 2021.

· **Lehigh University**, Industrial and Systems Engineering Department.

ISE Seminar, September 2020.

Other

· INFORMS Annual Meeting. Indianapolis, IN. October 2022.
· International Conference on Continuous Optimization (ICCOPT). Bethlehem, PA. August 2022
· SIAM Conference on Algebraic Geometry. August 2021
· Algorithms, Combinatorics, and Optimization Seminar, Carnegie Mellon University. December 2020
· Leadership Excellence and Development in Education and Research of Statistics (LEADERS). November 2020
· RICAM Workshop on Conic and Copositive Optimization. Linz, Austria. December 2019
· INFORMS Annual Meeting. Seattle, WA. October 2019
· Bell Labs. Murray Hill, NJ. October 2019
· Cornell Young Researcher's Workshop. Ithaca, NY. October 2019
· Modeling and Applications; Theory and Optimization (MOPTA). Bethlehem, PA. August 2019
· Workshop on Control-Oriented Learning on the Fly. Austin, TX. August 2019
· SIAM Conference on Applied Algebraic Geometry. Bern, Switzerland. July 2019
· INFORMS Annual Meeting. Phoenix, AZ. November 2018
· MOPTA. Bethlehem, PA. August 2018
· SIAM Annual Meeting. Portland, OR. July 2018
· International Symposium on Mathematical Programming (ISMP). Bordeaux, France. July 2018
· INFORMS Annual Meeting. Houston, TX. October 2017
· MOPTA. Bethlehem, PA. August 2017
· Integration of Transportation, Statistics and Big Data. Dresden, Germany. July 2017.
· SIAM Annual Meeting. Pittsburgh, PA. July 2017
· MOPTA. Bethlehem, PA. August 2016
· INFORMS Optimization Society. Princeton, NJ. March 2016

PROFESSIONAL SERVICE

Reviewer

· SIAM Journal on Optimization
· Symposium on Theory of Computing
· Mathematical Programming
· Mathematics of Operations Research.
· Science China Mathematics.
· European Control Conference.
· Annals of Operations Research.
· Theoretical Computer Science.
· SIAM Journal on Optimization.1

OTHER

Press Article

· M. Levy. **Surprising Limits Discovered in Quest for Optimal Solutions**. *Quanta Magazine*, 2021.
· Available at: https://www.quantamagazine.org/surprising-limits-discovered-in-quest-for-optimal-solutions-20211101/.