Sai Sandeep

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Professional Experience

May 2023— Present **Quantitative Researcher**, *Global Quantitative Strategies (GQS), Citadel*.
Built a multi-period, planning-based portfolio optimization system. Applied reinforcement learning and control-theoretic techniques to design sequential decision-making algorithms under uncertainty. Developed evaluation frameworks to test strategies across different market conditions and enable rapid experimentation for algorithm improvements.

2022–2023 **Postdoctoral Researcher, EECS**, *University of California, Berkeley*.
Research in theoretical optimization with applications to learning theory and robust ML.

2017–2018 **Research Fellow, Algorithms Group**, *Microsoft Research India*.
Developed novel clustering and online matching algorithms, resulting in publications at top-tier computer science conferences.

Education

2018–2022 **Ph.D. in Computer Science**, *Carnegie Mellon University*.
Advisor: Venkatesan Guruswami. Research focused on theoretical computer science and machine learning.

2013–2017 **B.Tech. in Computer Science and Engineering (Honors)**, *Indian Institute of Technology (IIT) Bombay*.

Selected Publications

* Full list available at Google Scholar

2023 SDPs and Robust Satisfiability of Promise CSP, STOC 2023
Designed algorithms for robust constraint satisfaction using semidefinite programming techniques.

2022 Almost Optimal Inapproximability of Multidimensional Packing Problems, FOCS 2022
Resolved long-standing open problems in multidimensional optimization.

2018 Constant Approximation for k-Median/Means with Outliers via Iterative Rounding, STOC 2018
Developed clustering algorithm with provable guarantees robust to outlier data.

Skills

Programming Python, C++, Lean
Frameworks PyTorch, JAX, CVXPY

Awards & Recognition

2021 Microsoft Research Ph.D. Fellowship Nominee (among 3 students selected by CMU CS Department)

2016-2017 ACM International Collegiate Programming Contest World Finals - 34th place (2017), Honorable Mention (2016)

2013 All India Rank 1 in IIT-JEE (1.5M+ candidates)

2011 & 2012 Awarded Gold Medal for being among top 30 students in Indian National Mathematical Olympiad, and attended the Indian IMO training camp.

References

Venkatesan Guruswami	**Ravishankar Krishnaswamy**	**Nasko Atanasov**
Professor, UC Berkeley	Principal Researcher, Microsoft Research	Head of Portfolio Construction, GQS Citadel
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