JAMES SUD

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EDUCATION

University of Chicago: Ph.D. student in Computer Science. Advisor: Fred Chong **Present**

University of California, Berkeley: B.S. in Physics, Minor in Computer Science. 3.9 GPA. **2020**

RESEARCH EXPERIENCE

Student Researcher: Computer Science Department, University of Chicago **Aug 2022 – {resent**

Summer Intern: JPMorganChase Global Technology Applied Research **Jun 2024 – Sep 2024**

Research Assistant: Universities Space Research Association **May 2020 – Aug 2022**

Intern: Los Alamos National Laboratory Quantum Computing Summer School **Jun 2020 – Aug 2020**

Quantum Programmer: Lawrence Berkeley National Laboratory **Dec 2019 – June 2020**

Project Group Leader: Quantum Computing @ Berkeley Club **Sep 2019 – May 2020**

Research Affiliate: Lawrence Berkeley National Laboratory **Aug 2017 – Aug 2018**

PUBLICATIONS/PREPRINTS

Ordered by contribution except (a) denoting alphabetical ordering. Bold: first author.

1. Sami Boulebnane, JS, Ruslan Shaydulin, Marco Pistoia. “Equivalence of Quantum Approximate Optimization Algorithm and Linear-Time Quantum Annealing for the Sherrington-Kirkpatrick Model.” 2025. arXiv:2503.09563.
2. Kunal Marwaha, Adrian She, **JS** (a). “Performance of Variational Algorithms for Local Hamiltonian Problems on Random Regular Graphs.” 2024. arXiv:2412.15147.
3. Daniel Belkin et. al. “Approximate t-Designs in Generic Circuit Architectures.” 2024. PRX Quantum.
4. Filip B Maciejewski et. al. “Design and execution of quantum circuits using tens of superconducting qubits and thousands of gates for dense Ising optimization problems.” 2024. Physical Review Applied.
5. Srikar Kasi et. al. “A Quantum Approximate Optimization Algorithm-based Decoder Architecture for NextG Wireless Channel Codes.” 2024. IEEE QCE.
6. Bram Evert et. al. “Syncopated dynamical decoupling for suppressing crosstalk in quantum circuits.” 2024. arXiv:2403.07836.
7. Yizhi Shen et. al. “Real-time Krylov theory for quantum computing algorithms.” 2023. Quantum.

8. **JS** et. al. “A Parameter Setting Heuristic for the Quantum Alternating Operator Ansatz.” 2023. Physical Review Research
9. Plato Deliyannis et. al. “Improving Quantum Simulation Efficiency of Final State Radiation with Dynamic Quantum Circuits.” 2022. Physical Review D
10. **JS** et. al. “Dual-map framework for noise characterization of quantum computers.” 2022. Physical Review A
11. Sohaib Alam et. al. “Practical verification of quantum properties in quantum-approximate-optimization runs.” 2022. Physical Review Applied.
12. **JS** et. al. “Correlation-informed permutation of qubits for reducing ansatz depth in the variational quantum eigensolver.” 2021. PRX Quantum.

TALKS

1. “Analysis of the Quantum Approximate Optimization Algorithm with Constant Evolution Time.” American Physical Society Global Physics Summit. Mar 2025.
2. “Average-case algorithms for quantum constraint-satisfaction problems.” UChicago Pritzker School of Molecular Engineering QISES student seminar. Dec 2024.
3. “Towards Classical Descriptions of the Quantum Approximate Optimization Algorithm” American Physical Society Global Physics Summit. Mar 2024.
4. "Frustration." UChicago Computer Science Theory Lunch. Feb 2024.
5. “Estimating the Dynamics of the Quantum Approximate Optimization Algorithm.” UChicago Computer Science Theory Lunch. Mar 2023.
6. “Towards Classical Descriptions of the Quantum Approximate Optimization Algorithm.” UChicago Pritzker School of Molecular Engineering QISES student seminar. Nov 2023.
7. “A Parameter Setting Heuristic for the Quantum Alternating Operator Ansatz.” American Physical Society Global Physics Summit. Mar 2023.

AWARDS

National Science Foundation Graduate Research Fellowship Program **Apr 2022-Present**

NASA Space Technology Graduate Research Opportunities (Declined) **Apr 2022**

Quantum Computing Summer Fellowship, Los Alamos National Lab **Jun 2020 – Aug 2020**

UC Berkeley Physics Department Olsen Memorial Fund and Jackson Award **Fall 2018 / 2019**

EXTRACURICCULARS

Music Composition and Production:

1. Podcast opening themes: The Deixis Podcast, Writer on the Run Podcast (Spotify).
2. Short Film Soundtracks: “Bekele” (Unpop Film Fest 2023), “The Connoisseur.”
3. NFT: Quantum Genesis.

4. Guitar, Bass, and Production: MintJulep - Sonic Medicine, 2022 (Review, proceeds to Black Lives Matter and COVID-19 Relief), Loose Ends, 2024.
5. Guitar, Bass, Instrumentation and Production: Sunnydew - Komorebi Album 1, 2022.
6. Guitar, Bass: University of Chicago South Asian Music Ensemble (Traditional South Asian)
7. Bass: Hamnavai (Islamic Devotional, proceeds to humanitarian aid in Middle East).

Design, Woodwork, Surfboard/Craft Shaping, Visual Art:

1. Skateboard, surfboard, watercraft, and clothing production, informal business ownership and website design: Nebular Rides.
2. Visual art and creative fiction: Portfolio on personal website.