Sajant Anand

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EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY
PhD in Physics, CM Theory
Expected May 2024 | Berkeley, CA

UNIVERSITY OF CAMBRIDGE
MASt in Applied Mathematics
June 2019 | Cambridge, England

WAKE FOREST UNIVERSITY
BS in Physics, Computer Science
May 2018 | Winston-Salem, NC
Joseph G. Gordon Scholar
Cum. GPA: 3.98 / 4.00

AWARDS

2021 - H2H8 Graduate Research Grant
2019 - NDSEG Fellowship
2019 - NSF Graduate Fellowship (Declined)
2018 - WFU Archie Award
2018 - APS Best Undergraduate Presentation
2017 - ACM/UPE Scholarship Award

LINKS

Github:// sajantanand
Classical Flute:// anandnra
Google Scholar:// sajantanand

SKILLS

PROGRAMMING
Over 5000 lines:
C++ • Matlab • LaTeX
Bash scripting • Python • MPI
Over 1000 lines:
C • Java • Cuda • R
iOS • Android

RESEARCH SKILLS
Transistor Fabrication • IR Optics
Machine Shop • Basic Clean Room
Ansys *Fluent*

HOBBIES

Western Classical Flute • Tennis
eSports • Academic Quiz Bowl

RESEARCH

TENSOR NETWORK ALGORITHMS | Graduate Researcher
March 2020 -- Present | UC Berkeley Physics

- Working with Prof. Mike Zaletel to develop novel tensor network algorithms for efficiently studying the dynamics of quantum models at finite temperature.
- Prepare starting quantum states for holographic simulation on a Honeywell quantum computer using Isometric Tensor Networks.
- Implement parallel DMRG algorithm using MPI for study of twisted bilayer graphene using bond dimension $\chi > 10000$.

ASSORTED MACHINE LEARNING | Graduate Researcher
August 2020 -- Present | UC Berkeley

- Proved that shallow, infinitely-wide neural networks with engineered activation functions have the same representational power as deep networks and demonstrate that optimizing network kernels can improve classification performance on tasks like CIFAR-10.
- Contribute tasks to open-source natural language processing benchmarks such as Google BIG-bench and GEM NL Augmenter; work to appear in ACM conference proceedings (Fall 2021)
- Design novel unsupervised clustering algorithm for analyzing scattering experiments in molecular chemistry.

EXTRACURRICULAR

TEACHER COORDINATOR AND INSTRUCTOR | Splash at Berkeley
Fall 2019 - Spring 2021 | Berkeley, CA

- Organize a biannual event for 400+ Bay Area high school students to take enrichment classes taught by Berkeley university members.
- Train teachers to lead a successful course that keeps students engaged and interested.
- Teach courses including *Special Relativity* and *Is the Earth Round?*.

FOUNDING MEMBER | WakerSpace
August 2015 - May 2018 | Wake Forest University

- Secured $100,000 in funding for on-campus, holistic Makerspace by presenting proposal to administration including president, provost, and dean.

PUBLICATIONS

[1] J. B. Simon, **S. Anand**, and M. R. DeWeese, arXiv:2106.03186 (2021).

[2] **S. Anand**, K. P. Goetz, Z. A. Lamport, A. M. Zeidell, and O. D. Jurchescu, Appl. Phys. Lett, 115, 073301 (2019).

[3] Z. A. Lamport, H. F. Haneef, **S. Anand**, M. Waldrip, and O. D. Jurchescu, J. Appl. Phys. 124, 71101 (2018).

[4] M. Piccardo, P. Chevalier, **S. Anand**, Y. Wang, D. Kazakov, E. A. Mejia, F. Xie, K. Lascola, A. Belyanin, and F. Capasso, Appl. Phys. Lett. 113, 31104 (2018).

[5] P. Chevalier, M. Piccardo, **S. Anand**, E. A. Mejia, Y. Wang, T. S. Mansuripur, F. Xie, K. Lascola, A. Belyanin, and F. Capasso, Appl. Phys. Lett. 112, 61109 (2018).