

Ankith Mohan | Curriculum Vitae

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EDUCATION

PhD Candidate in Computer Science

2021 - 2026 (expected)

Virginia Tech, Blacksburg, VA, USA

Advisor: [Jamie Sikora](#)

MS in Computer Science

2020

University of Southern California, Los Angeles, CA, USA

Advisors: [Aiichiro Nakano](#) and [Emilio Ferrara](#)

RESEARCH EXPERIENCE

Virginia Tech

2021 - Present
Blacksburg, VA

PhD Candidate

Advisor: [Jamie Sikora](#)

Thesis topic: Optimizing large, computationally hard problems in quantum information.

Virginia Tech

Summer 2025
Blacksburg, VA

Graduate Research Assistant

Advisor: [Sumeet Khatri](#)

Project topic: Minimizing classical communication cost for entanglement distribution in quantum repeaters using multi-agent reinforcement learning.

Agency for Science, Technology and Research (A*STAR)

Summer 2024
Singapore

Research Intern

Advisor: [Kishor Bharti](#)

Project topic: Approximate floquet quantum error correcting codes.

Fujitsu Research of America

Summer 2023
Sunnyvale, CA

Research Intern

Advisor: [Sarvagya Upadhyay](#)

Project title: Detection and identification of multiple quantum change points.

Fujitsu Research of America

Summer 2022
Sunnyvale, CA

Research Intern

Advisor: [Sarvagya Upadhyay](#)

Project title: Identification of influential nodes in a social network using combinatorial optimization.

University of Southern California

2018 - 2020

Research Assistant

Los Angeles, CA

Advisor: [Sze-Chuan Suen](#)

Project title: Modeling the effectiveness of PrEP on HIV/AIDS outcomes in Los Angeles county.

Information Sciences Institute

Spring 2019

Graduate Research Assistant

Marina Del Rey, CA

Advisors: [Robert F Lucas](#) and [Jeremy Liu](#)

Project title: Modeling large-scale reactive molecular dynamics (RMD) simulations data set of *MoS₂* monolayer to denoise grain boundaries and defects.

HONORS AND AWARDS

Best Research Award, Department of Computer Science, University of Southern California

2021

PUBLICATIONS

Book

Krishnaraj P.M., **Ankith Mohan**, and Srinivasa K.G. “*Practical Social Network Analysis with Python*”. Springer International Publishing, 2018.

Journals

- Caleb McIrvin, **Ankith Mohan**, and Jamie Sikora. “*Quantum state exclusion through offset measurement*”. [Physical Review A 110, 042211](#).
- **Ankith Mohan**, Aiichiro Nakano, and Emilio Ferrara. “*Graph signal recovery using restricted Boltzmann machines*”. [Expert Systems with Applications 185 \(2021\): 115635](#).
- Jeremy Liu, **Ankith Mohan**, Rajiv K. Kalia, Aiichiro Nakano, Ken-ichi Nomura, Priya Vashishta, and Ke-Thia Yao. “*Boltzmann machine modeling of layered MoS₂ synthesis on a quantum annealer*”. [Computational Materials Science 173 \(2020\): 109429](#).
- Krishnaraj P. M., **Ankith Mohan**, and Srinivasa K.G. “*Performance of procedures for identifying influentials in a social network: prediction of time and memory usage as a function of network properties*”. [Social Network Analysis and Mining 7, no.1 \(2017\): 34](#).

Conference Proceedings

- **Ankith Mohan**, Tobias Haug, Kishor Bharti, and Jamie Sikora. “*Quantum heuristics for large separable operators*”. To appear in [IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications \(TPS 2025\)](#).
- Mohammad Beigi, Ying Shen, Runing Yang, Zihao Lin, Qifan Wang, **Ankith Mohan**, Jianfeng He, Ming Jin, Chang-Tien Lu, and Lifu Huang. “*InternalInspector I²: Robust Confidence Estimation in LLMs through Internal States*”. [Findings of the Association for Computational Linguistics: The 2024 Conference on Empirical Methods in Natural Language Processing \(EMNLP 2024\) \(pp. 12847-12865\)](#).

Under Review

Nirupam Basak, Andrew Tanggara, **Ankith Mohan**, Goutam Paul, and Kishor Bharti. “*Approximate Dynamical Quantum Error-Correcting Codes*”. Submitted to [Quantum](#).

Preprints

- **Ankith Mohan**, Jamie Sikora, and Sarvagya Upadhyay. “*A generalized framework for quantum state discrimination, hybrid algorithms, and the quantum change point problem*”. Available as [arXiv: 2312.04023](#).

In Preparation

- **Ankith Mohan**, Chen Bai, Stav Halder, and Sumeet Khatri. “*Trading beliefs for classical communication in entanglement distribution with quantum repeaters: a multi-agent reinforcement learning approach*”.
- Tathagata Gupta, **Ankith Mohan**, Shayeef Murshid, Vincent Russo, Jamie Sikora, and Alice Zheng. “*Learning global properties of qubit sequences, one qubit at a time*”.

- Nirupam Basak, Andrew Tangarra, **Ankith Mohan**, Goutam Paul, Tobias Haug, and Kishor Bharti. “*Hierarchical quantum decoders*”.

PATENTS

Ankith Mohan, and Sarvagya Upadhyay. “*Hybrid Classical-Quantum Unsupervised Multiclass Classification*”. [US20250094447A1](#), filed September 15, 2023. Patent pending.

Xiaoyuan Liu, **Ankith Mohan** and Sarvagya Upadhyay. “*Identification of Influential Nodes in Graph Datasets Using Combinatorial Optimization Formulations*”. [US12437003B2](#), filed January 18, 2023, granted 7 October 2025.

PRESENTATIONS

Talks

- Quantum heuristics for large separable operators. Presented at the Second IEEE Workshop on Quantum Intelligence, Learning and Security (QuILLS 2025).
- Hybrid Classical-Quantum Unsupervised Multiclass Classification. Presented at the Fujitsu Research of America Seminar Series, July 2023.
- NISQ Algorithms for Separable Ground States. Presented at the Virginia Tech Quantum Information Science Symposium, April 2022.
- Approximating the Influence Maximization Problem in social networks using DA and QAOA. Presented at the Fujitsu Research of America Seminar Series, July 2022.

Posters

- The pretty bad measurement and optimal bounds for antidistinguishability. Presented at the 28th Annual Conference on Quantum Information Processing, February 2025.
- Approximate Dynamical Quantum Error-Correcting Codes. Presented at the CCI Student Researcher Showcase, March 2024.
- Pretty bad measurement. Presented at the CCI Student Researcher Showcase, March 2024. **Recipient of People’s Choice Best Poster Award**.
- A generalized framework for quantum state discrimination, hybrid algorithms, and the quantum change point problem. Presented at the Virginia Tech Quantum Information Science Symposium, November 2023.
- Inner Approximations and a NISQ Algorithm for the Quantum Separability Problem. Presented at the 25th Annual Conference on Quantum Information Processing, March 2022.

TEACHING EXPERIENCE

Substitute Lecturer

Introduction to Problem Solving in Computer Science

Spring 2024

- Taught two classes of 70 students each on the basics of networking.

Graduate Teaching Assistant

- *Ethics and Professionalism in Computer Science*
- *Data and Algorithms Analysis*
- *Introduction to Problem Solving in Computer Science*

Fall 2025

Spring 2025

Fall 2021

OUTREACH

C-Tech² summer camp at Virginia Tech

Lead Instructor

2025

Blacksburg, VA

- Lead instructor for one camp session of 64 students about introduction to quantum.

Other summer camps at Virginia Tech

Volunteer

2025

Blacksburg, VA

- *Explore Science (Grades 7-8)*
- *Explore Science (Grades 9-10)*
- *Explore Life Science*
- *WEE VT*
- *Virginia Tech QISE Summer School*
- *Explore Physical Sciences*

ACADEMIC SERVICE

- (Sub-)reviewer: TQC 2025.
- Reviewer: Journal of Physics A: Mathematical and Theoretical.

REFERENCES

Jamie Sikora.

Assistant Professor of Computer Science. Virginia Tech. Blacksburg, VA 24060.

sikora@vt.edu

Relationship: Doctoral Advisor.

Sumeet Khatri.

Assistant Professor of Computer Science. Virginia Tech. Blacksburg, VA 24060.

skhatri@vt.edu

Relationship: Doctoral committee member.

Sarvagya Upadhyay.

Head of Quantum Lab. Fujitsu Research of America. Sunnyvale, CA 94085.

supadhyay@fujitsu.com

Relationship: Internship Advisor.

Kishor Bharti.

Senior Scientist. Institute of High Performance Computing (IHPC), Agency for Science,Technology and Research (A*STAR). Singapore 138632.

bharti_kishor@ihpc.a-star.edu.sg

Relationship: Internship Advisor.