Fareeha Almas

fareeha.alm@gmail.com
fareehaalmas

"To wield a juxtaposition of creativity, imagination and the ever-evolving fundamentals of Mathematics and Physics to produce research that transforms lives"

Education

The University of Queensland — Brisbane, Australia

Ongoing — *Master of Science, Physics*

Kakatiya Institute of Technology and Science — Warangal, India

Aug 2018 – Jun 2022 — *Bachelor of Technology in Electrical & Electronics Engineering (with Minor in Physics)*

Awards and Scholarships

2025 Student grants for attending Algebraic Combinatorics, Special Functions, and Representation Theory Conference, Brisbane and the Quantum Australia Conference, Brisbane

2025 Travel Scholarship of 1000 AUD by the Australia Institute of Nuclear Science and Engineering (AINSE)

2025 Pathway Scholarship of 5000 AUD by AINSE towards Master's thesis

2025 Student grant of 1800 USD to support attendance at the International Particle Accelerator Conference (IPAC)

2024 Chief Minister's Overseas Scholarship amounting to 2,000,000 INR by the Govt. of Telangana

Submitted Manuscripts

2025 Demonstrating a Fisher Information based method for optimizing BPM placements in AS2
Submitted to the International Particle Accelerator Conference (IPAC) 2025 (**Link**)
Fareeha Almas, Tessa Charles, Frank Zhang, Benjamin Pope

Work Experience

The University of Queensland — Brisbane, Australia

Ongoing — *Research Assistant*

- Working at Qudits@UQ research group with Assoc. Professor Jacqui Romero and Dr. Daniel Peace on simulating and fabricating efficient grating couplers using Finite-Difference Time-Domain solvers in Lumerical and Tidy3D

Quantum Ecosystems Technology Council of India (QETCI) — Hyderabad, India

Nov 2022 - Feb 2023 — *Business Operations Coordinator*

- Coordinated with the Governing Board and stakeholders to accelerate the Quantum Ecosystem globally through programs on training, incubation and investment in Quantum
- Designed Membership Service and Community Outreach for each QETCI-member demographic
- Directed stakeholder engagement in global events such as the Quantum Science and Technology Hackathon 2022, an event with 1600+ participants and 50+ mentors
- Developed science communication articles on diverse topics such as 'Getting Started with Quantum Machine Learning', 'Why Investors Should Care about Clifford Gates' etc

DeepThought Edutech Ventures — Hyderabad, India

Feb - May 2021 — *Education Curriculum Disruptor Fellow, Marketing and Innovation Team Lead, MarComm Group Lead*

- Developed curriculum for Physics and Math classes using DeepTech prototypes of content engines
- Governed the development of zero to one DeepTech innovation products based on Socratic Learning, Daniel Goleman's theories, Feynman Technique, and Drucker's Management by Objectives

Research Experience and Academic Projects

UQ-ANSTO — Brisbane, Australia

Ongoing — *Masters Thesis*

- Supervised by Dr. Alex Stilgoe (The University of Queensland), Dr. Benjamin Pope (Macquarie University)) and Dr. Tessa Charles and Dr. Frank Zhang (Australian Nuclear Science and Technology Organisation, ANSTO)
- Implementing a fully differentiable model for Beam position monitors using autodiffrentiation frameworks and optimizing their placement using Fisher information and Bayesian Experimental Design
- Implementing sextupoles as opensource contribution to Cheetah - a fully differentiable accelerator beam dynamics code in collaboration with colleagues in Germany, fostering international research exchange and growth

The University of Queensland — Brisbane, Australia

Ongoing — *Research Collaboration*

- Collaborating with Dr. Matthew Winnel on Entanglement purification against depolarising noise
- Simulating the purification circuit for depolarising and Pauli error channels

Kakatiya Institute of Technology and Science Warangal — Warangal, India

May 2021 - Jun 2022 — *Stability Analysis of UAVs by the Root Locus Method*

- Led the project team, modeled the variations in stability derivatives for civil UAVs and and demonstrated the use of root locus based control for stability analysis using real time UAV transfer functions through FOMCON by using data input from DATCOM

Benzaiten Advisors — Hyderabad, India

Jul 2021 - Feb 2023 — *Research Intern*

- Analysed impact areas of quantum technology using the STECH-IMPACT framework and documented impact within an ethics purview for a diversified audience

Professional Affiliation and Memberships

Ongoing — Vice President, UQ Optica Chapter

Ongoing — Member, University Network for Investing and Trading (UQ)

2020 - 2022 — Programme Coordinator, WiE and Vice Chairperson, IEEE KITSW Student Branch

Transferable Skills

Technological and Research Skills

Proficient in C, C++, Java, Python, MATLAB and packages Tidy3D, Lumerical, Cheetah; Can utilize physical reasoning with math & physics to collect, review, statistically analyse and model information; Excellent scientific writing and problem-solving skills

Interpersonal Skills

Forming and sustaining strong interpersonal relationships through mutual respect, kindness, compassion, empathy and effective communication

Invited Talks and Visits

2024 — Invited talk on Bayesian Experimental Design of Australian Synchrotron 2 beamlines, Australian Synchrotron, Clayton Campus, Melbourne

2024 — Talk on Squeezing via Dynamical Casimir Effect, Teach at the Beach Student Conference, UQ Optica Chapter

2024 — Fully funded research visit to ANSTO facility, Lucas Heights, Australia

2024 — Panelist, "Women in Quantum" discussion, invited by Quantum Ecosystems Technology Council of India