Mohanbabu Mani

mohanbabumani@arizona.edu — +1 520 565 6505

linkedin.com/in/mohanbabu-mani-878568223 — mohanbabumani.github.io

EDUCATION

MS Optical Sciences — *The University of Arizona, Tucson, AZ*

Quantum Information Science and Engineering — *GPA: 4.0*

Relevant Courses: Quantum Optics, Photonic Integrated Circuits, Acoustics Driven Magnetic Resonance

Integrated M.Sc. Physics — *Pondicherry University, India*

Optics — *GPA: 3.1*

Relevant Courses: Computational Physics, Laser Optics

EXPERIENCE

Research Assistant — Jan 2024 – Present

The University of Arizona, Tucson, AZ

- Operate and manage Laser Doppler Vibrometer (LDV) to characterize phononic and photonic devices fabricated from materials like Lithium Niobate on Silicon and Aluminum Scandium Nitride on Silicon Carbide.
- Work with Acoustics Driven Magnetic Resonance group to study magnetostrictive properties of devices at room and cryogenic temperatures.
- Design and simulate low-loss Gaussian Bragg transducers for acoustoelectric and quantum optics applications.
- Investigate squeezed light and enhance detection capabilities for scalable quantum systems.
- Collaborate with Sandia National Labs on acoustoelectric quantum devices.
- Develop and optimize electronics for homodyne detection and phase-locking experiments.

Teaching Assistant — June 2024 – Aug 2024

The University of Arizona, Tucson, AZ

- Conducted lectures and labs for Mechanics and Electronics courses.
- Improved student performance through interactive support.

Cybersecurity Analyst — Sep 2022 – Sep 2023

Positka FSI Solutions, Chennai, India

- Led incident response, reducing resolution time by 40%.
- Enhanced SIEM monitoring and developed security SOPs.

PROJECTS

Laser Doppler Vibrometer (LDV) and Phononic Device Characterization — *May 2024 – Present*

- Characterized phononic devices fabricated with materials like Lithium Niobate on Silicon and Aluminum Scandium Nitride on Silicon Carbide.
- Integrated LDV with Magneto-Optic Kerr Effect to enhance measurement capabilities in photonic and phononic systems.
- Studied magnetostrictive properties of devices in cryogenic and room temperature environments.

Design and fabrication of Phononic devices — *June 2024 – Present*

- Designed and simulated low-loss high Q-factor acoustic cavities with Gaussian wave-structured transducing fingers for quantum acoustoelectric and magnetic resonance applications.
- Achieved high Q-factor results through COMSOL simulations.

Quantum Reservoir Computating — *Jan 2024 – Present*

- Optimized Balanced Homodyne Detector for detection of squeezed light in scalable quantum systems.

SKILLS

Research: Quantum Optics, Open Quantum Systems, Acousto-optomechanics, Fabrication

Technical: COMSOL, MATLAB, Python, LaTeX, GDS, SOLIDWORKS, SEM

Cybersecurity: Incident Response, SIEM Monitoring, Blockchain, Penetration Testing

Languages: English (TOEFL 91), French (DELF A1), German (69)

CERTIFICATIONS

Cybersecurity: Forensics, Cryptography, Penetration Testing

Languages: French (DELF A1), German Language Exam

Technical: Automation with Python, Blockchain, Advanced System Security