[redacted]

Objective

Passionate physicist specialising in quantum optics and photonics with a strong focus on single photon source for quantum networks. Currently engaged in research on fiber-integrated optical tweezers for scalable quantum technologies.

Experience

- **University of Florence, Italy** August, 2024 - Present
  Researcher
  Developing a scalable and portable ytterbium-based single-photon source using a fiber-integrated optical tweezer. Utilizing 3D direct laser writing (DLW) to fabricate a compact photonic device on a fiber tip for optical trapping, excitation, and collection of telecom-band photons. Optimizing the device with JCMsuite and Zemax to enhance performance. Current work includes testing with rubidium atoms as a preliminary step towards ytterbium integration.

- **Slovak Academy of Sciences** April 2023 - July 2023
  Visiting Researcher
  Developed a Python-based GUI in Jupyter Notebook for measuring correlated photons using the Time Tagger Ultra device, as part of the EuroQCI project on secure quantum communication. Utilized matplotlib, numpy, tkinter for the interface, and Pyro5 with Time Tagger modules to control the device and record photon arrival times across different channels.

- **University of Warwick, UK** March, 2021 - September, 2022
  Research fellow

  Worked on the project "Characterisation of Nanodiamonds Containing Nitrogen Vacancy (NV) Centres", focusing on enhancing the quantum coherence of NV superposition states by addressing decoherence caused by surface dangling bonds. My primary role involved reducing the concentration of these bonds and studying their spin relaxation dynamics. I utilised various spectroscopic techniques to characterise the surface properties and understand their influence on NV centre coherence.

- **Kyoto University, Japan** January, 2020 - July, 2020
  Master thesis project
  Contributed to the “Rydberg Atom Quantum Information Processing” project. Involved in creating a 325 nm laser via SHG from a 650 nm IFDL laser for Rydberg state excitation.

- **IISER Kolkata, India** May, 2019 - July, 2019
  Summer intern
  Worked on “Generation of Blind Cluster States and Quantum Fourier Transform for Blind Quantum Computing.” Focused on securing client-server quantum interactions.

- **Manipal University, India** May, 2018 - July, 2018
  Summer intern
  Theoretical study on quantum entanglement entropy of coupled harmonic oscillators.

Education

- **National Institute of Technology, Warangal** July, 2017 - August, 2020
  M.Sc in Engineering Physics with Photonics Specialization
  First class

- **Sambalpur University** July, 2013 - June, 2016

B.Sc in Physics Honors
First class

- **Govt. Junior College, Bhawanipatna** July, 2011 - June, 2013
  Intermediate in Science
  First class

Skills

- Research
- ZemaxOpticStudio
- OSLO
- JCMwave
- Blender3D animation
- Optical alignment
- Photonics
- Matlab
- EasySpin Software
- Teaching
- Good communication skills
- MS office

Achievements & Awards

- Kyoto University scholarship for my master thesis in Japan.
- Indian government prerana scholarship for pursuing master in NIT, Warangal.
- Qualified IIT JAM entrance exam for PG admission in NIT Warangal.
- I have received a laptop from the Chief Minister of Odisha for becoming college topper.
- Qualified National Graduate Physics Examination in 2015.

Publications

- **Experimental Demonstration of Force Driven Quantum Harmonic Oscillator in IBM Quantum Computer URLhttps://arxiv.org/abs/1906.01436**
- **Generation of blind cluster states and quantum Fourier transform for blind quantum computing on IBM quantum computer July 2019 URL- https://www.researchgate.net/publication/334451437**

Interests

- Travelling
- Swimming
- Cooking
- 3D animation
- Listen to music

Activities

- Photonic Device workshop at Zuse Institute Berlin (presented poster)
- Diamond Conference at University of Warwick (presented poster)
- Levitation of Diamond Conference at King's College London.
- Member of OSA and SPIE at NIT Warangal.
- Laser safety training at University of Warwick
- Telescope and Microscope design Zemax for minimising abberations.
- Science communication skills training for explaining research to non- specialist.
- Earthquake prevention and safety workshop at Kyoto, University.

Instruments Handled

- Confocal microscope
- High temperature annealer
- EPR Spectrometer
- Optical Microscope
- Optical Telescope
- Scanning Electron Microscopy
- Raman Spectrometer

- FTIR Spectrometer
- Time tagged ultra

Languages

- Hindi
- English
- Odia
- Telugu

Declaration

- All the information mentioned in the resume are correct to the best of my knowledge and believe.