

# ASHESH KUMAR GUPTA

Masters in Physics

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## LUTECH SPA

Present

### Quantum Researcher

- Developing QCNNs for classifying Medical Images
- Developing the MyQLM package for the QApptiva Quantum Simulator

## MAGNITION

May - Nov 2024

### Co-Founder, Magnition

- We are building a new sensing device that can detect a magnetic stylus(pen) and take that as an input for writing on electronic devices.
- The digitizer can be paired with any LCD over it and be integrated to build a complete product.

## EDUCATION

2025 - Present

### Masters Quantum Science and Technology

Università degli studi di Bari Aldo Moro

2022 - 2024

### M.Sc. Physics

CPI: 8.53

IIT Gandhinagar

2019 - 2022

### B.Sc. Physics

CPI: 8.45

Jadavpur University

## PATENTS AND PUBLICATIONS

Oct 2025

Notton, Cassandre, et al. "Establishing Baselines for Photonic Quantum Machine Learning: Insights from an Open, Collaborative Initiative." [arXiv:2510.25839 \(2025\)](https://arxiv.org/abs/2510.25839).

Sep 2024

### A SYSTEM AND A METHOD FOR MAGNETO-MECHANICAL DIGITIZER WITH ELECTRICAL DETECTION

- Filed a Provisional Patent, Docket No. 2415001IN-PS in the CGPDTM (Indian Patent office)

May 2024

### Titled Mott Insulator in Quantum Cavity: [Link](#)

Ashesh Kumar Gupta, Prasanna B Venkatesh

Apr 2023

Establishing a Quantum Key Distribution (QKD) Channel using a continuous photon source : [Project Link](#)

## INTERNSHIPS

Jan-Dec 2021

### Research Intern, TIFR Mumbai

Prof. Vijay A Singh, President, IAPT

- Explaining the effects of impurities on Graphene.
- Extended the work on calculating the density of states of impure Graphene with the help of Green's Function.

[Link](#): [Project Link](#)

Sep'23 - Jan'24

### Research Intern, Classiq

Lior Gazit; Gal Winer

- We executed a quantum simulation of Ising Hamiltonian on quantum hardware to study the utility of quantum algorithms before fault tolerance.
- Using the Classiq platform, we adapted the algorithm according to the hardware connectivity map.

## PROJECTS

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Aug'23 - Apr'24	<b>Quantum Phase Transition Enhanced Force Sensing (Masters' Thesis)</b>	Prof. Prasanna B Venkatesh
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- We seek to expand the study of the quantum phases of a tilted Mott insulator pioneered by Sachdev in 2002 to the case of an intra-cavity Mott insulator (MI) studied in some detail first by Larson et al in 2008.
- We were able to identify phase transition points by studying the Fidelity Susceptibility of the tilted system

Feb-Apr 2023	<b>Classical Model of BB84 Protocol, IIT Gandhinagar</b>	Prof. Chandan K Mishra
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- Developed a model to demonstrate the BB84 quantum encryption protocol classically.
- Successfully performed encryption using laser and photodetector.

**Link:** [Project Link](#)

## SUMMER SCHOOLS AND CONFERENCES

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July 2025	<b>European Quantum Technology Summer School</b>	Paderborn, Germany
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August 2025	<b>Summer School on Many-Body Correlations in Quantum Technologies</b>	Cagliari, Italy
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## ACHIEVEMENTS

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March 2021	<b>NIUS 2021 Scholarship</b>	Tata Institute of Fundamental Research
Selected for National Initiative for Undergraduates Students camp 17.1 organised by Tata Institute of Fundamental Research in 2021 and awarded a scholarship.		

## SKILL SUMMARY

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**Passions:** Quantum Optics, Quantum Many Body Problems, Quantum Algorithms

**Programming Languages:** Python, Julia, C++(Basics), Arduino programming, MATLAB, Dart

**Experience:** QuTip, Julia, Qiskit, Classiq, Cirq Pennylane, TensorFlow, Arduino IDE, PyTorch, Flutter App Development

**Soft Skills:** Innovative Thinking, Critical Thinking, Creativity, Technical Proficiency, Attention to Detail, Problem Solving, Adaptability.