ASHMIT GUPTA

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Summary

An Engineering Physics Undergraduate with a strong passion for Web Development and Quantum Computing.

Education

National Institute of Technology Hamirpur   Dec. 2021 – June 2025
Bachelor of Technology in Engineering Physics   *Hamirpur, Himachal Pradesh*

Jyoti Niketan School   April 2006 – June 2020
Primary and Secondary Education   *Azamgarh, Uttar Pradesh*

Technical Skills

Languages: C++, JavaScript, TypeScript, Python
Technologies/Frameworks: ReactJs, ExpressJs, Storybook, Qiskit, Pennylane, Classiq, PyTorch, Numpy, Matplotlib
Domains: Data Structures and Algorithms, Full Stack Web Development, Quantum Computing, Community Management

Experience

Google Summer of Code 2024   May 2024 - Present
Open Source Mentorship Program   *AsyncAPI Initiative*
- Developing a UI Kit for the AsyncAPI website using Storybook in Next.js and Typescript.

Open Source Contributor at the AsyncAPI Intitative   Oct. 2023 - Present
Web Developer and Technical Steering Committee Member   *AsyncAPI Initiative*
- I am a member of the AsyncAPI Technical Steering Committee which is responsible for the oversight of the AsyncAPI Initiative.
- Migrated the AsyncAPI Website from JavaScript to TypeScript + Next.js.
- Migrated the Modelina website codebase from class-based react components to functional components.
- Developed Modelina Playground to enable visitors to try Modelina itself on the website without configuring something in the local environment.

Quantum Computing Intern   January 2024 - Present
Internship   *Creed & Bear*
- Working on quantum computing research and software projects.
- Currently developing software for portfolio optimization using quantum computing.
- Researched and wrote a review paper on the Effect of Quantum Computing on Blockchain.
- Worked on the Optimization of the Power Distribution Network at the three-month TCS Quantum Challenge 2023.

Quantum Games Hackathon 2023   October 2023
Participant   *Quantum AI Foundation*
- Developed QuantaVania, a 2D action-adventure platformer quantum game facilitating Quantum Computing learning.
- Winner of the Special Prize for Sanrto/Onyx Category for demonstrating Logistics optimization using QUBO in our game.

Quantum Software Developer Trainee   October 2023 - January 2024
QCourse551 Mentorship Program with Classiq   *QWorld*
- Developing a hybrid network with classical and quantum layers to classify the MNIST dataset.
- Maintaining a weekly blog post about the project journey at https://jaisarita.hashnode.dev/.

Qiskit Advocate   August 2023 - Present
Developer Advocate   *Qiskit*
- Resolved Bugs in Qiskit Braket Provider and Qiskit Textbook.
- Achieved certification as IBM Certified Associate Developer - Quantum Computation using Qiskit v0.2X

QIntern 2023   July 2023 - August 2023
Research Intern   *QWorld*
- Optimized logistics using quantum computing.
- Solved Vehicle Routing Problem using VQE, Surrogate Optimization, and their variants.

11th NYUAD International Hackathon For Social Good   April 2023
Participant   *New York University Abu Dhabi*
- Attended workshops on QBronze and QSilver.
- Built an application to use Quantum Computing for Simulating Molecular Engineering for Fertilizer Design.

Microsoft Learn Student Ambassador   October 2022 − Present
Beta Microsoft Learn Student Ambassador   *Hamirpur*
- Completed the Technical Onboarding Process and learned about Git, GitHub, and Static Web Apps.
- Reached Alpha Milestone by completing Microsoft Learn Learning Path on Quantum Computing.
- Conducted a Microsoft Student Ambassadors Azure AI Challenge at my department with 24 attendees.

Projects

Open Source Contribution | *AsyncAPI, Uptane, Qiskit*
- Developed Modelina Playground, Modelina CLI, and Modelina Website. Migrated the AsyncAPI website from JavaScript to TypeScript. I am a Technical Steering Committee Member, a Maintainer, and a regular contributor at the AsynCAPI Initiative.
- Contributed to CI/CD and currently integrating Tailwind to Uptane Website.

QuantaVania | *Qiskit, Pygame*   Oct 2023
- Designed QuantaVania, an action-adventure 2D platformer with the potential for evolving into an open-world sandbox.
- Winner of the Special Prize by Snarto/Onyx at the Quantum Games Hackathon 2023.

Portfolio Website | *Figma, React, Typescript, Three.js, TailwindCSS, EmailJS, GraphQL, HyGraph*   July - August 2023
- Developed a portfolio website for myself having features to write blogs, and showcase my projects, experiences, and resume in an interactive way using 3D components.

AskItOut: Doubt Sharing Website for Educational Institutions | *Figma, React, Express.js*   Feb - May 2023
- Designed and developed a website enabling college students to ask and get answers to their doubts from experienced seniors.
- Code and detailed description available at https://github.com/devilkiller-ag/AskItOut.

QCrop | *Qiskit, React, Python*   April 2023
- Developed QCrop, an application utilizing Quantum Computing to simulate molecular engineering for fertilizer design.
- Utilized Variational Quantum Eigensolver and Error Mitigation Techniques for calculating the energy landscape of different molecules.

Quantum Breakout | *Pygame, Qiskit, Python*   March 2023
- Created a Quantum version of the classical Breakout Game, aiding school students in learning Qubit Manipulation using different Quantum Gates.

Website for Team Abraxas | *Figma, ReactJs, react-three-fiber, react-three-drei*   March 2023
- Developed the official website of Team Abraxas for the annual tech-fest Nimbus 2023 at NIT Hamirpur.

Explore All Projects
- Visit https://ashmit.dev/archives to explore all my projects in detail.

Workshops and Events Hosted

Quantum Breakout Game: Revolutionizing Quantum Learning Through Gamification   23rd Nov 2023
Speaker at the Data Science Summit 2023   *VoD*
- Delivered an overview of Quantum Computing, addressing challenges faced by newcomers.
- Explored the role of quantum games in overcoming learning obstacles beginners face, featuring a live demonstration of Quantum Breakout Game and QCGE.

Surrogate Optimization for QUBO solver using QROSS Method   23rd Nov 2023
Speaker at the Data Science Summit 2023   *VoD*
- Presented an overview of research on Surrogate Optimization for QUBO Solver as a QIntern at QWorld.

QuantaVania: A Quantum Computing Sandbox Platformer Game   23rd Nov 2023
Speaker at the Data Science Summit 2023   *VoD*
- Presented the journey at the Quantum Games Hackathon 2023 and QuantaVania, illustrating its transformation into a Sandbox game for running in-game quantum circuits on real quantum devices.

Introductory Workshop on Quantum Computing   4th February 2023
Team Abraxas   *Nimbus 2023*
- Conducted a Workshop on The Introduction to Quantum Computing, instructing 100+ students about the basics and career opportunities.

Reimagining Education in Light of NEP 2020   20th April 2023
Physteo   *NIT Hamirpur*
- Organized the first workshop by Physteo - The Physics Society of NIT Hamirpur.
- Facilitated talks by Prof. B.N. Jagatap and Prof. B.P. Singh on National Education Policy, Laser Photonics, Entrepreneurship, and career Paths for Engineering Physics Students.

Leadership / Volunteering

Physteo - The Physics Society   Oct. 2022 – Present
Founder and President   *NIT Hamirpur*
- Founded the Physics Society of the National Institute of Technology Hamirpur under the Department of Physics and Photonics Science.
- Organizing National Physics Conference 2024 to bring top representatives of Industry and Academia working in the different fields of Physics to one platform and guide the students.
- Leading and managing the team of 60 individuals to promote our department in the industry world and guide our students.

UbuCon Asia 2024   May 2024 – September 2024
Volunteer   *Ubuntu Asia Community*
- Organizing UbuCon Asia 2024 at Jaipur, India.
- Handling the Website Development, Sponsorship, and Management Role.

Training and Placement Office   August 2023 – September 2024
Training and Placement Representative (TPR)   *NIT Hamirpur*
- Currently serving as a Core TPR managing industry and institute interaction and database.
- Served as Junior TPR during my pre-final year undergraduate studies from August 2023 - April 2024. I helped pre-final year students to grab internships by bringing and coordinating with various companies.

Team Abraxas   Dec. 2022 – Present
Executive Volunteer and Pre-final year Volunteer   *Nimbus 2023 and Nimbus 2024*
- Conducted a workshop on the Introduction to Quantum Computing, instructing 100+ students about the basics and career opportunities.
- Developed a 2-D game, Quantum Breakout, to simplify learning Quantum Gates.
- Leading and guiding freshmen and sophomore volunteers.

Society for Promotion of Electronics Culture   Dec. 2021 – Jan. 2023
Executive Volunteer   *NIT Hamirpur*
- Organized Electrothon 4.0, a global online hackathon with 2000+ participants.
- Created content for social media posts, emails, and speeches for various society events.
- Organized and hosted workshops to give attendees an insight into the engineering industry.

Hackathons and Events Attended

- Qubit by Qubit Winter Break Intensive
- Electrothon 4.0
- Smart India Hackathon 2022
- Womanium Global Quantum Computing and Entrepreneurship Program 2022
- Hacktoberfest 2022
- MIT iQHack 2023
- Xanadu QHack 2023
- Nimbus 2023
- Electrothon 5.0
- 11th NYUAD International Hackathon for Social Good
- Qiskit Spring Challenge 2023
- UnitaryHACK 2023
- Quantum Game Jam 2023
- Quantum Games Hackathon 2023
- Hacktoberfest 2023
- TCS Quantum Challenge 2023-24
- Nimbus 2024