






Asish Kumar Mandoi

Associate Software Engineer, Citrix
Bachelor of Technology in Electrical Engineering
Indian Institute of Technology Kanpur

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EXPERIENCES

- Jul '23 – Present* **Associate Software Engineer, Citrix Systems**
Core Networking Team, NetScaler Business Unit, Bengaluru, India
- Contributed to the two most high-visibility projects for Citrix for the year 2023-24, Citrix Secure Private Access & F5 to NetScaler Config Converter
 - Developed PolicyGen AI, an LLM-based tool equipped with latest intelligent prompt optimizers (DSPy) to generate NetScaler policies from natural language prompts, and demonstrated its working
 - Made security upgrades for authentication and privacy protocols in SNMPv3 used in NetScaler, by extending support to the latest standards
- Dec '21 – Apr '23* **Research Associate, QResearch Project, QWorld**
QWorld 
GitHub 
- Contributed to a working publication focused on various hybrid quantum-classical techniques to solve combinatorial optimization problems in logistics
 - Validated theoretical results of 5 solvers of the Vehicle Routing Problem (VRP) by performing experiments for 550+ VRP instances on the D-Wave quantum annealers
 - Devised a new solver for VRP with higher performance compared to existing solvers
 - Co-mentored several interns in designing QUBO formulations for VRP
 - Presented our work on Quantum Annealing based VRP formulations at IT conferences – WDI 2022  and Data Science Summit 2022 
- Jan '23 – Mar '23* **Quantum Computing Analyst Intern, Unisys India**
Enterprise Computing Solutions Research & Innovation Team
- Made major contributions to the development of a proof of concept-based prototype in collaboration with the D-Wave team to tackle large-scale Vehicle Routing
 - Evaluated the commercial feasibility of the model by achieving near optimal solutions for datasets with over 1000 nodes in under 5 mins of runtime
- May '22 – Jul '22* **Software Engineer Intern, Citrix Systems**
DevOps and Automation Services Team, Bengaluru, India
- Developed a robust monitoring system for detecting issues related to Grafeas , a software auditing service critical for multiple internal applications at Citrix
 - Implemented a Golang microservice with safeguarded endpoints against DDoS attacks and deployed it with Kubernetes using Helm Charts to private cloud
 - Built a periodically triggered CI/CD pipeline using Jenkins and incorporated it with a metadata capturing component handled using Grafeas
 - Facilitated active monitoring of the Grafeas API by creating a dashboard and an alert system on Slack based on reports collected from the pipeline logs using Splunk

ACHIEVEMENTS & HONOURS

Professional Achievements

2024 Citrix Systems

Among top 20% employees to be awarded rating – 1 as a recognition of valuable contributions by employees throughout the year

Programming Achievements

2022 HAQS, qBraid

Won the qBraid Open Challenge and among the top 3 contenders in the QML Challenge

2022 Quantum Excellence, Qiskit Global Summer School 2022, IBM

Badge  Among 1200 worldwide to complete the 2 week long Qiskit Global Summer School program with intensive hands-on labs focused on quantum simulations using NISQ hardware

2021, 22 IBM Quantum Challenges

Badges  Among 1000 worldwide to complete challenges of *fall 2021* and *spring 2022* by solving problems in areas of finance, fermionic chemistry, machine learning and optimization

2020, 2021 Google Kickstart

Globally ranked 846 in Round E 2022, 1055 in Round D 2021, and 976 in Round H 2020



2020, 2021 Facebook Hacker Cup

Globally ranked 1967 in Round-1 2021 and 2769 in Round-1 2020



Scholastic Achievements

- 2019 All India Rank 3592 in JEE-Advanced out of 220,000+ shortlisted candidates
- 2019 All India Rank 7480 in JEE-Main out of 0.9 million+ candidates
- 2019 National Top 300 to be selected for Indian National Chemistry Olympiad, HBCSE
- 2017 All India Rank 322 in KVPY out of 50,000+ candidates and awarded KVPY Fellowship by Govt. of India, and IISc Bangalore

PRESENTATIONS

- Nov '22 **A. Mandoi**, "Quantum Annealing methods for solving the Vehicle Routing Problem." Talk presented at **Data Science Summit 2022** , Warsaw, Poland.
- Apr '22 S. Borah, **A. Mandoi**, A. Verma, "Heuristic QUBO Formulations for solving the Vehicle Routing Problem using Quantum Annealing." Talk presented at the 13th **WDI '22** , Warsaw, Poland.

SELECTED PROJECTS

- Dec '22 – Jul '23 **Hopfield Neural Networks for Combinatorial Optimization**
Advisor: Prof. Shubham Sahay
- Studied the properties of annealing-inspired computing accelerators based on nonvolatile memory technology for combinatorial optimization with near-optimal accuracy and performance
 - Achieved near-optimal solutions to 800+ node optimization problems by implementing Hopfield Neural Networks and applying various stochastic and weight annealing techniques
- Oct '21 – Jan '22 **Quantum Open Source Foundation**
QOSF  Quantum Computing Mentorship Program, Mentor: Dr. Vesselin G. Gueorguiev
- Among 40 out of 1000+ global applicants to be selected for the program and recognized for developing one of the best solutions to a Quantum Search problem
 - Implemented new solvers for the Travelling Salesman Problem (TSP) and the Vehicle Routing Problem (VRP) based on clustering and non-clustering techniques
 - Improved performance of existing quantum annealing-based solvers for TSP and VRP by optimizing our algorithms to use minimal number of qubits
 - Benchmarked accuracies and running times of solvers by testing them on D-Wave Quantum Annealers
- May '21 – Jul '21 **IITK-Coin**
GitHub  Backend of a pseudo-currency system | Programming Club, IIT Kanpur
- Developed a microservices-based pseudo-currency application using Golang and SQLite
 - Reinforced backend security by employing Bcrypt algorithm to hash & salt passwords
 - Built an additional layer of protection by incorporating endpoints with user authorization using JSON Web Tokens and implementing an OTP-based confirmation system for transactions
 - Facilitated transaction tracking for admins by logging all activity into the database
 - Increased server efficiency by allowing up to 300 concurrent transactions per second by utilizing Redis for caching and enabling WAL journal mode in SQLite

EDUCATION

- 2019 – 2023 **Bachelor of Technology in Electrical Engineering**, CPI: 7.5/10.0
Minor in Quantum Physics
Indian Institute of Technology Kanpur, India
- 2019 **Grade XII (CBSE Board)**, Cumulative Percentage: 93.8%
MBS Public School, Bhubaneswar, India
- 2017 **Grade X (CBSE Board)**, CGPA: 10.0/10.0
DAV Public School, Bhubaneswar, India

TECHNICAL SKILLS

- Languages** C, C++, Python, Go, MATLAB, JavaScript
- Web** Node.js, HTML, CSS, PHP, MySQL, SQLite, Redis
- Frameworks/SDKs** QuTiP, TensorFlow, Qiskit, Ocean, DSPy (prompt optimizer for AI models)
- Utilities/Tools** Git, Docker, Kubernetes, Jenkins, Splunk, \LaTeX , Linux shell utilities

RELEVANT COURSEWORK

Quantum Computing, Data Structures and Algorithms, Fundamentals of Computing, Computer Networks, Introduction to Machine Learning, Probability and Statistics