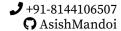
# Asish Kumar Mandoi

Junior Undergraduate, Electrical Engineering Indian Institute of Technology Kanpur



#### **EDUCATION**

Year	Degree/Certificate	Institute	CPI/%
2019 - 2023	B.Tech in Electrical Engineering	Indian Institute of Technology Kanpur, India	7.33/10.0
2019	Grade XII (CBSE Board)	MBS Public School, Bhubaneswar, India	93.8%
2017	Grade X (CBSE Board)	DAV Public School, Bhubaneswar, India	10.0/10.0

### PROJECTS & EXPERIENCES

## Quantum Computing Mentorship $Program^{[o]}$

Oct '21 - Present

Mentor: Dr. Vesselin G. Gueorguiev, Quantum Open Source Foundation

Among ~40 out of 1000+ applicants to be selected for the program by solving an assessment task innovatively

• Recognized for developing **one of the best solutions** out of all submissions to the task by implementing **Quantum Search on Unstructured Data** using quantum loading and **Grover's algorithm** 

GitHub ♂

QOSF ♂

• Implemented optimal solutions for the **Travelling Salesman Problem** and the **Vehicle Routing Problem** by using various **optimization techniques** based on **Quantum Annealing** and **Quantum Approximate Optimization Algorithm** 

• Compared the runtimes and accuracies of various optimization algorithms run on **Quantum Computers** (of fundamentally different architectures) as offered by **IBM** and **DWave** 

IITK-Coin

May '21 – Jul '21

Backend of a pseudo-currency system to be used in the IITK campus | Programming Club, IIT Kanpur

GitHub ©, DockerHub ©

• Developed the backend from the ground up using Go programming language and SQLite for database management

- Secured the endpoints by incorporating user authorization using JWTs, and built an additional layer of protection against hacks by employing the Bcrypt algorithm to hash and salt passwords
- · Added a transaction tracking functionality for administrators and implemented an OTP based confirmation system
- Increased server efficiency by handling up to 300 concurrent transactions per second by utilizing the WAL journal mode in SQLite and Redis for caching
- · Containerized the application using Docker and made it publicly accessible on DockerHub

#### **Crio Winter of Doing**

Jan '21 – Feb '21

Externship program for developers | Crio.Do

CWoD ♂

- · Acquired familiarity in HTTP, REST API, AWS, Linux, Git, HTML, CSS, JavaScript by implementing related concepts
- Launched an instance of Amazon EC2, deployed the backend server of the QEats (dummy) android app, and connected the app to its backend server
- · Sorted cities based on the popularity of the QEats android app by analyzing 10k+ logs using Linux shell techniques
- Deployed the frontend and the backend of my **Personal Portfolio** 🗗 web application; Fetched my repository descriptions in **real-time** by **integrating** my **GitHub** account with this application
- · Among the final 1200 out of 10,000+ total applicants to clear the coding round and reach Stage-2B

#### Algorithms based on Maths

Apr '21 - Jun '21

Stamatics, IIT Kanpur

- Investigated and implemented algorithms like prime factorization, factorial calculation, and polynomial hashing in C++
- Improved working knowledge in devising and optimizing approaches to solve various mathematical and algebraic
  problems using Number Theory and Programming by actively participating in competitive-programming contests

#### TECHNICAL SKILLS

Programming Languages C, C++, Python, Go, MATLAB, JavaScript

Web Technologies Node.js, Express, HTML, CSS, PHP, MySQL, SQLite, Redis

Libraries/Frameworks Qiskit, NumPy

Utilities Linux shell utilities, Git, Docker, LTEX

# **ACHIEVEMENTS & HONOURS**

#### **Programming Achievements**

• IBM Quantum Challenge: Among 677 worldwide to complete the IBM Quantum Challenge Fall 2021 by solving problems in areas of finance, natural sciences, machine learning and optimization using Quantum Computing 2021

• Google Kickstart: Globally ranked 1636, 1055, 976 in Round E 2021, Round D 2021, Round H 2020 2020, 2021

• Facebook Hacker Cup: Globally ranked 1967, 2769 in Round-1 out of 34000+ total contestants

2020, 2021

## **Scholastic Achievements**

• Secured All India Rank 3592 in JEE-Advanced out of 220,000+ shortlisted candidates

2019

• Achieved All India Rank 7480 in JEE-Main out of 0.9 million+ candidates

2019 2019

Among National Top 300 to be selected for Indian National Chemistry Olympiad ♂, HBCSE
 Secured All India Rank 322 in KVPY ♂ out of 50,000+ candidates and selected for KVPY Fellowship by

2017

Govt. of India, and IISc Bangalore, one of the most prestigious science scholarships in India

# RELEVANT COURSEWORK

Quantum Computing $^{[i]}$ Probability and Statistics Data Structures and Algorithms<sup>[i]</sup> Intro to Machine Learning<sup>[i]</sup>

Digital Electronics Language & Society