Sangram Singh Malik

NY, USA

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Education

New York University *Abu Dhabi, UAE*

BSc in Computer Science (GPA : 3.95/4) *Aug 2021 - May 2025*

- Recipient of full-ride Scholarship from NYU

Skills

Programming Python (PyTorch, TensorFlow), R, C/C++, HTML/CSS, JavaScript, SPARQL.

Other Qiskit, Node.js, Express.js, MongoDB, Socket.IO, Selenium, REST APIs, Rustworkx, WebSocket, LaTeX, Git.

Work Experience

Center for Interacting Urban Networks *Abu Dhabi, UAE*

Undergraduate Research Intern *Mar 2023 - Aug 2023*

- Developed a set of tools for parsing open data, transforming them into Cubes using n-triple and turtle formats, and integrating them into a graph database.
- Utilized web scraping techniques to automate the extraction of structured data from websites, APIs, and databases, enabling efficient data collection and analysis.
- Implemented mapping rules to ensure accurate representation of data in the graph.
- **Technical Skills:** Python,SPARQL,Selenium,OpenRefine.

MyCarmunity *Halle, Germany*

Machine Learning Intern *May 2023 - Present*

- Developed web scraping scripts employing NLP (advanced text mining techniques) to extract information from car auction websites.
- Developed predictive models for pricing, demand forecasting, and market analysis

WeDance *Munich, Germany*

Software Engineering Intern *Dec 2022 - Mar 2023*

- Conducted thorough testing and debugging to identify and fix issues, ensuring a smooth and error-free user experience across different devices.
- Collaborated with a cross-functional team to design and implement a RESTful API for the website, resulting in a **20%** increase in customer satisfaction.

Projects

Qathir Package (link) *Abu Dhabi, UAE*

New York University Hack'23 *Feb 2023 - Mar 2023*

- Leveraged a quantum-enhanced end-to-end solution for cost-efficient sensor placement and rapid fault and vulnerability localization in water distribution networks.
- Utilized **Qiskit** to develop fault detection algorithms, enabling accurate and timely identification of network anomalies.
- Employed **D-Wave**, **IBM Quantum** and **Xanadu** technologies to optimize sensor placement, ensuring optimal coverage and efficient monitoring of the complex water distribution networks.
- Successfully delivered a robust and efficient solution for managing increasingly complex water distribution networks, improving network resilience and minimizing downtime.

Course Search Application (link) *Abu Dhabi, UAE*

New York University *Oct 2022 - Dec 2022*

- Developed a full-stack web application that allows users to submit reviews and visualize courses based on different criteria.
- Implemented functionality for users to join course specific study focus rooms for collaboration using WebRTC.
- **Technical Skills:** Node.js, Express.js, NeDB, P5LiveMedia, JavaScript, HTML/CSS.

Achievements and Involvement

1st Place, Tandon HAQathon '23 (link) *NY, USA*

Quantum Computing Hackathon *Oct 2023*

- Published an open-source package that optimizes complex transportation networks by utilizing quantum technologies for station placement and route optimization.
- Employed a machine learning model using **PyTorch**, trained on extensive historical data, to predict potential delays accurately.
- Integrated the outcomes of the delay prediction with the quantum route optimization leveraging Variational quantum eigensolver **(VQE)**, minimizing delays, and reducing operational costs.
- Successfully optimized station placements with Quantum Approximate Optimization Algorithm **(QAOA)** using **Amazon Braket** and **Qiskit** on **IBM Quantum's gate-based computers**.

2023 **Treasurer and Chair,** Algorithmic Problem Solving Club

2023 **Teaching Assistant,** Courant Institute of Mathematical Sciences *NY, USA*