MUHAMMAD USMAN FAROOQ

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EDUCATION

City University of Hong Kong *August 2018 - Present*
Bachelor of Science, Computing Mathematics, Year 2

Relevant Coursework: Data Structures and Algorithms, Ordinary Differential Equations, Real Analysis, Measure Theory, Probability and Statistics, Discrete Math, Linear Algebra, and Calculus (single and multi-variable).

EXPERIENCE

Nanjing University June 2020 - Present
Research Assistant at CS Theory Group, Supervised by Professor Penghui Yao *Nanjing, China*

· Proving lower bound for the Quantum Communication Complexity of Set-Disjointness Problem in an asymmetric setting using Quantum Information Complexity (funded by Unitary Fund)

City University of Hong Kong February 2019 - Present
Research Assistant at Quantum Theory Group *Hong Kong*

· Analyzing the use of Variational Quantum Circuits in scaling various classical machine learning algorithms.
· Worked on detection-based quantum autoencoders to mitigate quantum error.

Edvant Ltd May 2019 - February 2020
Software Enginering Intern *Hong Kong*

· Leveraged Node.js, Dockers, SQL and NoSQL Databases for developing the back-end and deployment of multiple projects including the main product UReply.
· Developed Web and Mobile Interfaces using React, Vue.js and React Native.

CityU Underwater Robotics October 2018 - August 2019
Computer Vision Engineer *Hong Kong*

· Worked with OpenCV to identify contours, colors, and positioning of the camera to let robot perform vision specific tasks.
· Training Machine Learning models for object detection using SSD Algorithm to let the robot detect various objects and perform tasks autonomously.

PAPERS

(Preprint) Xiao-Ming Zhang, Weicheng Kong, **Muhammad Usman Farooq** Man-Hong Yung, Guoping Guo, & Xin Wang. "Detection-Based Error Mitigation Using Quantum Autoencoders." ArXiv:2005.04341 [Quant-Ph], May 2020.

TECHNICAL EXPERIENCE

Prior Experience/Proficient: Python(QISKIT, NumPy, Matplotlib, Pandas, PySpark, scikit-learn), JavaScript(MERN), MATLAB, Java, Version Control, MySQL, Dockers, Apache.

Learning: Common Lisp and Rust.