SHISHEER S KAUSHIK

shisheerskaushik@aol.com| Website | Linkedin| Github

Skills

Languages

English | Hindi | Kannada

Programming

Python | C | HTML | Verilog HDL

Softwares & Frameworks

Scikit-learn | CST Studio | OpenCV | Matlab | Network Simulator-2

Quantum Development Frameworks

Qiskit | Cirq | PennyLane | QuTiP

Deep Learning Frameworks

Tensorflow | PyTorch

Soft Skills

Teamwork | Leadership

Education

B N M Institute of Technology, Bengaluru, India

Bachelor of Engineering - CGPA: 8.37

Electronics & Communication Engineering

July 2018 - 2022

Alvas Pre-University, India

Class XII (State Board) - Score: 86.5%

August 2016 - May 2018

Jain Public School, India

Class X (CBSE AISSE) - CGPA: 9.0

June 2015 - March 2016

UG Courses

Calculus and Linear Algebra

Transform Calculus, Fourier Series

Complex Analysis and Probability Theory

Engineering Physics and Quantum Mechanics

Digital Communication & Computer Networks

Digital Signal Processing

Experience

view in portfolio

Quantum OpenAI. - *Freelance Developer*

Team Head: Rajat Vishwakarma

March 2023 - Present

- I have been working as a freelance developer, collaborating on the development of a quantum simulator that leverages real-time IBM quantum device data to fine-tune its calibration in real time.

Qkrishi Quantum Pvt. Ltd. - *Junior Researcher*

Guide: Raghavendra V (Head of Research, Qkrishi)

November 2022 - Present

- Working on developing and evaluating a novel quantum optimization algorithm to solve the travelling salesman and vehicle routing problem using phase estimation technique by encoding the given distances between the cities as phases.

Elite Techno Groups - *Data Science Insternship*

Guide: Mayank Arora (CEO and Founder at Elite-Techno)

August 2021 - September 2021

- During one month of internship, I implemented an Inventory Management system by transmitting structured data network in JSON format.
- This system was used to keep track of products, perform sales analysis and generate a statement consisting of the purchase history of the company.

Qworld Association (QIntern-2021) - *Summer Intership*

Mentor: Zeki Can Seskir (Doctoral Student at KIT-ITAS, Germany)

July 2021 - August 2021

- The project focused mainly on creating a platform for a comprehensive and curated collection of resources aiming to help understand Quantum Computing.
- I was allotted to one respective group under a mentor to work on major computational issues faced during Quantum Application Programming, like “Quantum Error Correction”.
- During the course of my internship, I devised a Quantum Error Detection model based on surface error code, It enhanced my skills and knowledge in this particular field.

Projects

view in portfolio

Benchmarking and Solving Vehicle routing problems on various Quantum Computing (QPU's) - *Optimization*

November 2022 - Present

This ongoing project is a part of my work as a junior researcher at Qkrishi, Gurgaon, India. The objective is to develop a novel optimized quantum algorithm using several methods, like the phase estimation technique to solve the traveling salesman problem and vehicle routing problem and benchmark the respective routing algorithm on various available QPU’s by testing on several optimization algorithms to observe and compare the best optimal (minimal) cost.

Malware detection in Android through Quantum Machine Learning model - *Quantum ML*

January 2023

I developed a customized machine learning model to detect malware in the android by analyzing and classifying the behaviour of mobile applications, as malicious or benign. It utilizes an open-source framework ‘SecMl’ for training, and evaluating machine learning models. And a Hybrid quantum-classical machine learning algorithm VQC for dataset classification.

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Embedded Systems & VLSI
Cryptography & Network Security
C and Python Application Programming

Summer Schools & Workshops

CirQuiT Summer School on Quantum Computing
RV College of Engineering (2021)

IBM Qiskit Summer School
IBM Quantum (2 Years)

Quantum Computing Workshop
Qworld (2 courses)

LPS Summer of Quantum
LPS Qubit Collaboratory (2 courses)

Online Courses

Quantum 101: Delft X
Edx - TU Delft University (2 courses)

Cryptography and Network Security
NPTEL (2022)

Quantum Computing With Qiskit
Udemy (1 course)

Introduction to Quantum Computing
Coursera - St Petersburg State University (1 course)

Achievements

IBM Certified Associate Developer- Qiskit v0.2X
Awarded IBM Qiskit Developer badge for demonstrating fundamental knowledge of quantum computing concepts and by being able to express them using Qiskit open source (SDK).

IBM Quantum Challenge
2021, 2022

Secured Advance Badge among 2000+ participants across the world and my results stood out in the top 25 contestants.

QC-Hackathon
September 2015

My project secured 7th place for building a QR-Code Generator using the Bernstein-Vazirani algorithm.

Excellence in academic award
September 2019

I secured 3rd rank in Engineering department during my 1st semester.

Quantum QR-Code Generator - *Quantum Algorithms*
March 2021 - April 2021

I built a model which generates a QR-code by encoding the quantum state in a two-dimensional array of black and white squares, by utilizing the Bernstein-Vazirani algorithm for searching the secret bit string of an oracle

Quantum secure communication via Stegenography using BB84, BBM92 & Ekert91 Protocol - *Quantum Communication*
February 2021

An interactive model, that would enable users to experiment with the encryption and decryption process to transmit secret messages securely, using the Quantum key Distribution methodology, particularly the BB84, BBM92 and Ekert91 protocol.

Celebrity Look-alike classification model - *OpenCv*
Dec 2020 - Jan 2021

This project is a face-recognition model built using dlib's python library and CNN to identify and classify a celebrity look-alike portrait from the picture being uploaded. The model produced 98.38% similarly proportion when tested with two distinct metrics based approaches such as Euclidean distance and Mahalanobis distance.

Designing Wearable Antenna - *UHB Micro-strip patch antenna*
May 2021 - July 2022

The aim of the project is to design and fabricate a very efficient, highly sensitive and low-cost micro-strip patch antenna with an etched customized logo which is tailored to perform the intended application of remotely monitoring the health.

Publications

view publication

Wearable Antenna For Remote Health Monitoring
Published in IEEE-2023

This article presents the design and fabrication of a wearable, fully flexible and efficient micro-strip patch antenna pasted on both jeans textile and FR4 (lossy) material to operate at f = 2.66 GHz and f=2.3 GHz as a centre frequencies. This work discusses, experimental and numerical results of the antenna designed and fabricated. It is observed that the SAR value, which is an important parameter, is well within FCC standards, indicating that this proposed antenna is feasible to use for Tele-medical applications. The paper is due to be published in IEEE Xplore this year.

Extracurricular

view in portfolio

Qworld Association Global Workshops - *Academic Mentor*
Qworld is a non-profit global organisation that brings quantum computing researchers & enthusiasts together. As a mentor, I have actively participated in numerous workshops & events by guiding enthusiasts across the globe.

Bolt IoT - *Developer & Content Writer*
BOLT IoT is a group of professionals and students who foster IoT and ML development.

We Make Devs - *University Lead at Community Classrooms*
Mentoring on a road map track by providing hands-on training in various fields of scientific computing, collaborating with like-minded candidates in a community.

TYCIA and Valliappa Foundation - *Student Fund-raiser*
Served as the Student fund-raiser & influencer, by finding several donors for the #1000 and you campaign focusing on Tribal Girl child Education.