**Arshpreet Singh** | Lead Engineer

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*Avoiding complexity reduces bugs.*

I am actively developing and maintaining internal **Python and Go-Lang based distributed systems** that are held responsible for index-creation, data-fanout, index-rebalance, and portfolio-generation pipelines at Blackrock Inc. I do actively participate in solution architecture and Cloud implementation of legacy systems.

I have 6+ years of experience as a **Python developer**, with expertise in **Flask**, **Django, SQL, Go-Lang, Latex, C/C++, Julia, and parallelization using MPI.** I have worked on multi-processing techniques using cutting-edge asynchronous programming models. I have also contributed to several **Open-Source** projects like **Tux4Kids**, **Kivy**, **Open-Street Mappings**, **Pennylane**(Quantum-Computing Framework), and **Paraview**(Scientific Data-Analysis Framework).

**Employment Details**

**ITC Infotech Remote Work**

*Lead Engineer, client: Blackrock April 2020–Current*

Development of **5+ data-processing applications** using Python, Go-Lang, Docker, and Kubernetes.

Responsible for on-boarding **2 major vendors(Morgan Stanley Capital International and Financial Times Stock Exchange)** onto customer proprietary end-to-end investment platform.

Development and integration of index-market holiday framework that reduced failure of production jobs by 80%.

Hired, Trained, and on-boarded 5+ Associate level Engineers for clients like Gartner, Blackrock, and Walmart.

Legacy code maintainer for 3 python projects related to index re-balances. Development of Unit-Testing modules.

Delivered Talk on **Quantum-Computing and Hybrid-Machine-Learning** at Blackrock internal Python confer­ence.

**Maropost India**

*Go-Lang Developer, client: Multiple January 2019– April 2020*

Development and Deployment **20+ Micro-services** using Technology Stack: Go-Lang, Protocol Buffers, Kafka, Docker, Kubernetes, and Timescale-db.

Responsible for managing GCP and generic infrastructure for High Availability.

Replaced **4 RoR(Ruby on Rails) Services with Go-Lang** to reduce server response time and increase efficiency by 70%.

Solely responsible for **containerization(Docker) of 10+ projects**, Also initiated container technology in the organization with internal meetups and hackathons.

**Netsmartz India**

*Senior Software Engineer August 2017–April 2018*

Development and Deployment of MicroServices using Technology Stack: **Python, Flask, Docker, and MySQL.** Implemented asynchronous programming models to reduce response time from 5 minutes to 15 seconds. Development of an in-house framework to achieve Periodic Automation Testing for the complete SDN platform that increased availability of production systems.

Worked on Block-chain Project using Hyper-ledger to build network-packet pathways for transparent and secure loop.

**Revinfotech Ludhiana**

*Full-Stack Python. Client: Bitfinex May 2016–August 2017*

Design and development of Software Projects using Python, Django, Flask, MongoDB.

Active participation with 6+ clients to understand business needs and creation of end-to-end Solutions contributed as a major revenue source.

**Future Tech IT center Ludhiana**

*Web Developer. Client: Multiple January 2014–April 2016*

Design and development of Software Projects using Python, HTML, CSS and Wordpress

Active participation with clients to understand business needs and Producing end to end Solutions.

**Noteable Projects**

**Development and Deployment of Index-Cache-Server using Go-Lang**

This project was required to cache 30 days of Indices data to deliver over **100+ clients and reduce request load on the actual database server.**

**MSCI data pipeline development**

Developed index data-loader for **MSCI(Morgan Stanley Capital International)** to handle Quality-Check and Asset-Resolution for Index-vendors.

**Development of Hybrid Quantum Machine-Learning Model(Tensorflow-Quantum)**

Used Pennylane Quantum Framework to create Quantum Machine Learning Model to run on actual near term Quantum-Computer model enhances the prediction accuracy of Classical model by 20%.

**Neural Network based crypto trading bot**

Bitcoin Live Trading is a Web-Based System developed using Django to generate Buy/Sell calls using Bitfinex and Coindesk APIs based on Predictive Results produced by Neural Network Algorithm.

**Market-Swing Auto-Trading Algorithm**

Worked on Technical-Analysis for high momentum stocks and produced trading strategy with more than 50% annual results on backtests.

**Para-view Advanced Volume Filter(Scientific Data Analysis)**

Advanced Volume Filter developed using Python as Scripting Language with support of other Libraries like Numpy, Scipy, and SymPy to filter different types of materials automated everyday manual work of 8+ hours into 20 minutes.

**Education and Certifications**

**Academic Qualifications**

**GNDEC - Ludhiana, Punjab, India**

***B. Tech: Information Technology*** *2009–2013*

**Certifications**

**Coursera - Tensorflow Specilization for Developers**

[*https://bit.ly/3m87lih*](https://bit.ly/3m87lih) *2020*

**IBM - Quantum Computing Foundations**

[*https://bit.ly/3qunH5C*](https://bit.ly/3qunH5C) *2020*

**HackerRank - Rest APIs Development**

[*https://www.hackerrank.com/certificates/b43d16c9c3c4,*](https://www.hackerrank.com/certificates/b43d16c9c3c4,) *2020*

**Coursera - Julia for Scientific Programming**

[*https://bit.ly/3A2QmTC,*](https://bit.ly/3A2QmTC,) *2017*

**Coursera - Deep Learning Specialization**

[*https://bit.ly/2UAxHOx,*](https://bit.ly/2UAxHOx,) *2017*

**Pluralsight - Golang Fundamentals and Beyond**

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[*https://bit.ly/3xVYm6V,*](https://bit.ly/3xVYm6V,) *2020*

**Pluralsight - Working with Graph Algorithms in Python**

[*https://bit.ly/2TbZ3dv,*](https://bit.ly/2TbZ3dv,) *2020*

**Pluralsight - The Challenges of Quantum Computing**

[*https://bit.ly/3jcrOS5,*](https://bit.ly/3jcrOS5,) *2020*

**Pluralsight - Applying Financial Risk-Modeling Techniques**

[*https://bit.ly/3x1dpMx,*](https://bit.ly/3x1dpMx,) *2020*

**Pluralsight - Docker and Kubernetes**

[*https://bit.ly/35Y7BaA,*](https://bit.ly/35Y7BaA,) *2020*

**Redhat - Fundamentals of Containers DO081X**

[*https://www.redhat.com*](https://www.redhat.com/)*, 2020*

**Open Source Contributions**

**Container-Orchestration of Quantum ML Framework**

Development of Container-Orchestration for Pennylane to support multiple Quantum-interfaces with single space and one click installation for CPU and GPU devices.

**Quantum Simulator development for Quantum-Computing Platform(Unitary Hack)**

Participated in Unitary-Hack**(**[**https://unitaryfund.github.io/unitaryhack/)**](https://unitaryfund.github.io/unitaryhack/))for the development of Quantum-Simulator for PyTorch. After this contribution end-user will be able to perform Quantum-Operations on Quantum-Devices using PyTorch as back-end, which makes Quantum Circuits trainable as PyTorch tensors.

**Tux-blocks**

Tux Paint and Tux-math are free, award-winning programs for **children ages 3 to 12** (for example, preschool and K-6). Tux Paint is used in schools around the world as a computer literacy drawing activity. It combines an easy-to-use interface, fun sound effects, and an encouraging cartoon mascot who guides children.

**Open Street Mapping**

OpenStreetMap is a map of the world, created by people and free to use under an open license. I Organized a **”Mapping Party”** as well as Workshop for School students to tech **GPS-Tracking** , Uploading and Creating maps using GPS trace. Completed Digital mapping of 20 villages of Punjab with help of school students.

**Rock’s Cluster Implementation(High Performance Computing)**

Rocks is an open-source Linux cluster distribution that enables end users to easily build computational clusters, grid endpoints and visualization tiled-display walls.

**Built complete HPC(High Performance Computing)Cluster** using 10 computers and HPC module was used to distribute jobs throughout the compute nodes.

**LTSP(Linux Terminal Server Project) Implementation**

The Linux Terminal Server Project adds thin client support to Linux servers. LTSP is a flexible, cost effective solution that is empowering schools, businesses, and organizations all over the world to easily install and deploy thin clients.

My Project AIM was to setup Load-balancer, boot-server as well as application server. Boot server was responsible for providing Boot image to each client as well as helping to allocate it to Application Server.