

# Osama Iqbal

Mumbai, India

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## Experience

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### Canada Pension Plan, Investment Banking

Lead Associate Software Engineer

Mumbai, India

February, 2022 – Present

- Led and Implemented OneTick Time Series Database Migration from on-premise to AWS cloud, creating and implementing custom AWS Architecture, saving \$1 million in costs.
- Enhanced DASH Order Management System to incorporate Securities Borrowing and Lending Compliance quality-of-life improvements, saving thousands of dollars in compliance fines.

**Technologies:** AWS, OneTick Timeseries, AWS DataSync, AWS Lambda, AWS EC2, AWS Aurora, AWS SNS, AWS SQS, AWS EFS, AWS Storage Gateway, C++ MFC, Python3, pandas-1.x, Numpy.

### Nomura Services India Pvt. Ltd.

Associate Quantitative Developer

Mumbai, India

May, 2020 – February, 2022

- Innovated on a fixed income quantitative library requiring optimising for low-level L3 cache for 50+ general purpose functions.
- Strengthened distributed grid computing to calculate all risks and aggregations, using spare compute cycles from more than 1000 computers in Nomura.
- Pioneered an easier deployment mechanism for computing grid packages to machines, saving 1 hour of support time per deployment.

**Technologies:** Python3, pandas-1.x, Numpy, C++, Boost, Clang, C#, ASM, OpenMP, Intel Intrinsics, AVX2, Jenkins CI/CD, AWS, Docker, TDD.

Senior Software Development Analyst

October, 2018 – May, 2020

- Engineered a business-critical Rules Engine based on "Rete" algorithm parsing 130k+ live trades.
- Directed end-to-end development of the engine, enabling business analysts to write rules in English or Python3, decoupling developers, leading to 200+ rule change deployments per day.
- Optimized rules engine, improving time from 15 seconds to 70 milliseconds per trade leading to decommissioning of HPC servers.
- Spearheaded the adoption of the rules engine for inter-system translations and communications between 4 systems.

**Technologies:** Python3, pandas, Numpy, Cython, AST, Jupyter, Tibco EMS, Seaborn, Dash, VBA, TDD.

Software Development Analyst

July, 2016 – October, 2018

- Implemented Common Risk Interchange Format's (CRIF) Risk data aggregations for 12 legal entities, containing 500K data points each.
- Improved end of day file feeds of around 8K files for fixed income products, along with market data, in the form of curve objects, 30 files per entity.
- Strengthened quantitative analytical library by adding 4 different cold-start multi-processing functions.
- Architected end-to-end Collateral Sensitivity batches end-of-day batches for generating sensitivities report for fixed income assets, saving thousands of dollars in risk exposure.

**Technologies:** Python2, PySpark, MapReduce, Hadoop, Dask, Flask, Django, Multiproc and Multithread libraries, TDD.

Software Development Intern

January, 2016 – July, 2016

- Conceived a GUI tool that makes FIX 4.4 protocol messages, sending 10k messages to an Exchange Simulator.
- Created a client-server socket-based distributed test-case runner configured on spare machines - running 7k test cases simultaneously.
- Reworked critical test case suite to modern coding standards for 3 front-office systems.

**Technologies:** Python2, QuickFix, win32com, Websocket library, PHP, Bootstrap, Javascript, jQuery.

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## Education

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### **WorldQuant University**

*M.S. Quantitative Finance*

**Mumbai, India**

*January, 2017 – January, 2019*

### **Sardar Patel Institute of Technology, Mumbai University**

*Master of Computer Application*

**Mumbai, India**

*July, 2014 – July, 2016*

### **Valia C.L. College of Science, Mumbai University**

*Bachelor of Science (Information Technology)*

**Mumbai, India**

*July, 2011 – March, 2014*

## Skills

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**Languages:** Python, C++, C#, SQL

**Technologies:** Pandas, Numpy, Dask, PySpark, Hadoop, Hive, MapReduce, Matplotlib, Seaborn, Flask, Django, Cython, Boost, OpenMP, ASM, Intel Intrinsics, AVX2, MSSQL, Postgresql, MySQL, Tibco EMS, Git, Github-Actions, Docker, Jupyter, Jenkins CI/CD, JIRA, CMake, TDD.

**Technologies (Working Knowledge):** PyTorch, Tensorflow, JAX, Reinforcement Learning, Deep Learning, Machine Learning, CUDA, C#, Apache Kafka, Typescript, Javascript, ReactJS, React Native, RESTful services, Microservices, ETL, Databricks, Vtkjs, Itkjs, Groovy, Elasticsearch, Logstash, Kibana, Bazel.

## Certifications

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**AWS:** Certified Developer Associate

**Datacamp:** Data Scientist (Python)

**Coursera:** Machine Learning

**DeeplearningAi:** Deeplearning Specialisation

**DeeplearningAi:** MLops for Production

## Projects and Interests

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- Led a Machine Learning class at Nomura, with more than 30 people in the group.
  - Conducted a Tech Talk at Priceline on "Data Oriented Design", with more than 100 attendees.
  - Expanded QMK/VIA Keyboard Firmware Open Source Project.
  - Developed Open-Source Vaccinator API for Covid-19 Vaccination Booking, achieving more than 100 bookings.
  - Experimented with FireSim and Chipyard for RISC-V Emulation.
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