Osama Iqbal

Mumbai, India

Quantitative Developer with six years of experience in creating, optimising and scaling trade reporting and trade validation engines in the fixed income sphere of financial institutions.

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Experience *(6 Years, 2 Months)*

Canada Pension Plan, Investment Banking — **Mumbai, India**
Associate Software Engineer — *February, 2022 – Present*

- Led and Implemented OneTick Time Series Database Migration from on-prem to AWS cloud, creating and implementing custom AWS Architecture.
- Enhanced DASH Order Management System to encorporate Securities Borrowing and Lending Compliance quality-of-life improvements.
- **Technologies:** AWS, OneTick Timeseries, AWS DataSync, AWS Lambda, AWS EC2, AWS Aurora, AWS SNS, AWS SQS, AWS EFS, AWS Storage Gateway, C++ MFC, Python, pandas, numpy.

Nomura Services India Pvt. Ltd. — **Mumbai, India**
Associate Software Developer — *May, 2020 – February, 2022*

- Innovated on a fixed income quant 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:** Python, pandas, 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.
- Led end-to-end development of the engine, enabling business analysts to write rules in English or Python, 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.
- Led the adoption of the rules engine for inter-system translations and communications between 4 systems.
- **Technologies:** Python, 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 quant analytical library by adding 4 different cold-start multi-processing functions.
- Architectured end-to-end Collateral Sensitivity batches end-of-day batches for generating sensitivities report for fixed income assets.
- **Technologies:** Python, 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:** Python, QuickFix, win32com, websocket library, PHP, Bootstrap, Javascript, jQuery.

Education

WorldQuant University — **Mumbai, India**
M.S. Quantitative Finance **(80.0%/100.0%)** — *January, 2017 – January, 2019*

Sardar Patel Institute of Technology, Mumbai University — **Mumbai, India**
Master of Computer Application **(GPA: 8.29/10.0)** — *July, 2014 – July, 2016*

Valia C.L. College of Science, Mumbai University — **Mumbai, India**
Bachelor of Science (Information Technology) **(82.5%/100.0%)** — *July, 2011 – March, 2014*

Skills

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.

Working Knowledge: PyTorch, Tensorflow, JAX, Reinforcement Learning, Deep Learning, Machine Learning, CUDA, C#,Apache Kafka, Typescript, Javascipt, ReactJS, React Native, RESTful services, Microservices, ETL, Databricks, vtk.js, itk.js, Groovy, ElasticSearch, Logstash, Kibana, Bazel.

Certifications

AWS: Certified Developer Associate
Datacamp: Data Scientist (Python)
Coursera: Machine Learning
deeplearning.ai: Deeplearning Specialisation
deeplearning.ai: MLops for Production

Other Work Experiences

Freelancing — **Mumbai, India**
Freelancer — *February, 2021 – August 2021*

- Delivered a recommendation engine for a short video application with 1k+ user base.
- Developed CoviCough that uses MEL-sepstrum and biomarkers to detect COVID positivity based on coughs, modelled after an MIT research paper with data from EPFL, IISc's containing 220k data.
- Architected a system called "Pulmon" to visualize DICOM les and generate 2D/3D visualizations of CT-Scans or X-ray to detect 14 pulmonary diseases.
- **Technologies:** vtkjs, itkjs, Reactjs, React Native, PyTorch.

Projects and Interests

- Led a Machine Learning class at Nomura.
- Contributed to QMK/VIA Keyboard Firmware Open Source Project.
- Developed Vaccinator API for Covid-19 Vaccination Booking.
- Created a Toy Compiler using LLVM.
- Worked with FireSim and Chipyard for RISC-V Emulation.