Shashwat Dalal

JUNIOR PRINCIPAL MACHINE LEARNING ENGINEER, QUANTUMBLACK
COMPUTING MENG, IMPERIAL COLLEGE LONDON

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WORK EXPERIENCE

QUANTUMBLACK (A MCKINSEY COMPANY) | Junior Principal Machine Learning Engineer

September 2020 – Current | London, United Kingdom

- Tech Lead for Simulation-Based Optimization Group: Guided and shaped 10+ client engagements across various industries, including **energy, engineering, logistics, and life-science**, to optimize operations and improve decision-making processes through simulation and advanced analytics.
- Bidding Agent for Battery Energy Storage System: Led a team of 5 engineers to develop a **reinforcement learning** based bidding agent that increased revenue by 34% compared to a linear programming benchmark. Responsible for technical deliverables, project management, and system architecture.
- Scaling Protein Engineering: Led a migration of a protein engineering asset to an elastic GPU cluster using Ray and Kubernetes, significantly reducing costs and boosting throughput for our life-science clients. For the protein folding pipeline, achieved a 57x speedup, a 70% improvement in GPU utilization, and a 30% reduction in costs by scaling across a 20 V100 GPU cluster. For the molecular embedding pipeline, delivered a 37x speedup, a 40x increase in throughput, and a 60% cost reduction.
- Turbine Design Optimization: Led the development of a distributed black-box optimizer for turbine operations and condition monitoring, improving turbine efficiency by +0.4% (validated by CFD) in 1/20th the time and at half the cost compared to previous methods. The optimizer utilized genetic and Bayesian methods and ran on a GPU cluster of 20 machines using Ray.
- Supply Chain Optimisation Led a team of 6 in designing a linear optimization model for a global computer manufacturer, aimed at unifying production and capacity planning across regions. Integrated with internal data platforms to enable API-driven decision-making based on dynamic forecasts, backlog management, and third-party manufacturing capacity constraints.
- Clinical Trial Optimization: Spearheaded the data engineering workstream for optimizing clinical trial site selection. Developed a unified training and inference data-engineering framework, which reduced project timelines by one week.

BLOOMBERG | Software Engineering Industrial Placement

April 2019 – September 2019 | London, United Kingdom

- Maintained **BuildStream**, an open source build and integration tool written in **Python**.
- Wrote a plugin to automate the creation of reproducible and layered **Docker** images.
  Report: https://shashwatdalal.github.io/files/placement_report.pdf

BARCLAYS INVESTMENT BANK | Summer Technology Analyst

June 2018 – September 2018 | London, United Kingdom

EDUCATION

IMPERIAL COLLEGE LONDON | Computing MEng. (Graduated 1st Class)

2016 - 2020 | London, United Kingdom

Academic Projects

- **Effect of Non-Identically Distributed Data on Federated Learning for Next-Word Prediction:** Final year project.
  Report: https://shashwatdalal.github.io/files/fl_fyp.pdf
  Slides: https://bit.ly/3bpAU8g
- **Aspect-based Sentiment Analysis with Goldman Sachs:** In a team of six, built an aspect-based sentiment analysis engine for the asset management engineering team. Back-end written in **Python** and database layer used **MySQL**, and **Microsoft Cosmos**.
  Report: https://shashwatdalal.github.io/files/Software_Engineering_Project_Report.pdf
  Code: https://dev.azure.com/vapesoc/362%20Software%20Engineering%20Project/

SKILL-SET SUMMARIZED

TECHNICAL SKILLS

Python • Ray • PyTorch • Java • Docker • Kubernetes • Deep Learning • Bayesian Optimisation • Reinforcement Learning • Federated Learning • Linear Programming. • Natural Language Processing • Distributed Systems • GPUs

LANGUAGES

English (Written/Spoken Fluency) • Gujarati (Spoken Fluency) • Japanese (Written/Spoken Conversational) • Spanish (Written/Spoken Conversational) • Hindi (Spoken Conversational)