Ossama Chaib

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Education

Imperial College London **June 2022**

Master of Engineering (MEng) Computing - ***First-Class Honours***

Experience

Software Engineer - Fitch Group **April 2023 - May 2025**

- Led the design and development of Alpha, a Python-based asynchronous microservices system on AWS for large-scale model processing.
- Enabled parallel processing of complex financial models across 1000+ concurrent tasks, scaling capacity by 5X, reducing computation from hours to minutes while cutting infrastructure costs.
- Developed a robust API with FastAPI, handling bulk/streamed data transfer, OAuth-based authentication and authorization, rate limiting, and OpenAPI documentation.
- Developed a multi-queue listening strategy for custom-priority model runs, optimizing Lambda capacity and reducing processing latency by 55%.
- Enabled real-time status updates for synchronous model runs using Kafka.
- Built CI/CD pipelines (Bamboo, Docker, Kubernetes) for microservices, integrating automated testing, multi-environment deployments, and security scans (Xray/Veracode).
- Integrated Datadog for comprehensive observability and end-to-end request tracing, reducing MTTR by 70%.
- Deployed Alpha across multiple environments with disaster recovery replicas via AWS CloudFormation, ensuring 98% uptime, geographical redundancy, isolated testing environments and regulatory compliance.

Computer Science Teacher - Holland Park School **April 2025 - July 2025**

- Led instruction for GCSE and A-Level Computer Science, taking full ownership of lesson planning, material creation and assessment for multiple year groups.
- Delivered workshops to students on practical software engineering practices, including version control, cloud computing, ML, prompt engineering, agile methodologies and cybersecurity.
- Managed diverse classrooms, fostering high engagement and student growth.

Data Scientist - Shell DSCoE **June - September 2021**

- Built a Python framework for causal inference in control systems.
- Extended reinforcement learning frameworks (SK-Optimize, modAL) for internal use cases.
- Accelerated data processing and model optimization using ML libraries (Numpy, OpenAI Gym, Tensorforce).

Research Software Engineer - Imagination Tech **June - September 2020**

- Developed OpenCL programs to offload parallel texture decompression to GPUs.
- Leveraged OpenGL for acceleration at runtime resulting in a 27% increase in processing speed.
- Conducted research on emerging GPU trends to propose new improvements for future pipelines.

Projects

Gradient - AI-powered Teaching Assistant **2025**

- Built Gradient, an AI-powered assessment platform that automates handwritten exam evaluation using multi-modal LLMs (Gemini/Claude), piloted with early-adopter teachers reducing grading time by 79%.
- Architected a distributed backend (AWS Lambda, Fargate, S3, FastAPI) processing 300+ student papers asynchronously, handling OCR, LLM inference, and result aggregation.
- Designed an abstract agent framework supporting multiple LLM providers (Anthropic, Google) with dynamic model selection, structured output parsing, and resilient fallback mechanisms.
- Created a full-stack education platform (Next.js, TypeScript, Supabase) with role-based access control, real-time class management, and student performance analytics.
- Built predictive analytics and AI-powered curriculum tools: ML models forecast student performance, trigger teacher alerts for at-risk students, generate personalised assessments and class-wide performance insights.
- Implemented LLM observability and evaluation infrastructure using Langfuse for trace-based monitoring and Pydantic Evals for automated model/prompt evaluation.

Bazaar - Ethereum Marketplace for Redeemable Fashion **2022**

- Deployed an Ethereum dApp to tackle e-commerce friction using NFTs for physical goods redemption.
- Collaborated with designers and end-users to build a novel content creation and shopping experience.
- Developed a JavaScript backend, secure Solidity smart contracts, and a React web app for listing, bidding, and redeeming NFTs for physical items.
- Reduced gas fees by 40% for users and saved 45% in smart contract deployment costs.

Skills

Programming Languages: Python, TypeScript, JavaScript, Solidity, Haskell, Elixir

Technical: Python (aioboto, aiokafka, FastAPI, Numpy, Pandas, Pydantic), TypeScript (React, Next.js, zod), AWS (Lambda, Fargate, Step Functions, S3, DynamoDB, MSK, SQS, IAM, EC2, EKS), Databases (PostgreSQL, MongoDB, Supabase), ML (PyTorch, LangChain, llama-index, Tensorforce, LLMs, Langfuse), Linux, Figma.

Languages: English, Arabic