Aayush Bajaj

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Summary

- ML Engineer ranked #57 globally on KiTS19 medical imaging benchmark. Builds end-to-end ML pipelines on HPC infrastructure (H200/A200 GPUs) with PyTorch. Ships production applications with Docker, CI/CD, and cloud deployment. AWS Solutions Architect certified.

Experience

ML Engineer — 3D Medical Image Segmentation
KiTS19 Grand Challenge

Grand Challenge
Oct 2024 - June 2025

- Ranked
- Engineered end-to-end nnU-Net training pipeline on Nvidia H200 GPUs; conducted systematic ablation studies across architectures and hyperparameters. Published technical report.

Full-Stack ML Engineer — Conversational AI
Full-Stack Chatbot

Production
Jan 2025 - June 2025

- Built full-stack conversational AI with Hono REST API, OpenAI GPT streaming, Zod schema validation, and PostgreSQL on Bun runtime.
- Implemented typed middleware pipeline with authentication, rate limiting, and structured logging; deployed via Docker to Vultr VPS.

ML Engineer — Satellite Image Segmentation
Kaggle

Remote
Sept 2024 - Dec 2024

- Achieved 0.71 IoU on 97% class-imbalanced satellite dataset using custom 31M-parameter U-Net with combined Dice-Focal loss.
- Parallelised training pipeline across CUDA-enabled HPC cluster; improved raw IoU from 0.66 to 0.71 via morphological post-processing.

Projects

Minesweeper AI Solver
ONNX / Browser

- Built hybrid CSP + deep learning Minesweeper solver with ResNet architecture (6 residual blocks, 128 filters, batch normalisation); deployed via ONNX for browser inference achieving 85-95% win rate.

10,000 Hours of ML

- Maintained monolithic ML experiment repository covering CV, NLP, RL, and supervised/unsupervised learning; version-controlled experiments across 50+ architectures.

Skills

Deep Learning: PyTorch, TensorFlow, HuggingFace, nnU-Net, U-Net, CNNs, LLMs, RAG

ML Engineering: Python, CUDA, HPC (H200/A200), Distributed Training, Hyperparameter Tuning, Scikit-learn, NumPy, Pandas

LLM and GenAI: LangChain, LangGraph, OpenAI API, Prompt Engineering, Fine-tuning

MLOps: Docker, AWS, Azure, Git, CI/CD, Experiment Tracking, Model Serving, REST APIs

Education

University of New South Wales
Bachelor of Computer Science (AI), Minor Mathematics

Sydney, Australia
Feb 2021 - Sept 2025

Certificates

AWS Solutions Architect (SAA-C03)
Amazon Web Services

Mar 2026 - Mar 2026

AI Agents Course
Hugging Face

Jan 2026 - Feb 2026