

Aayush Bajaj

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Summary

- UNSW BSc(AI) graduate; Master of Statistics in progress. Ranked #57 globally on the KiTS19 medical imaging benchmark (0.9129 Dice) with end-to-end PyTorch + nnU-Net pipelines on HPC clusters (H200/A200). Comfortable training on HPC and exporting to ONNX for inference. AWS Solutions Architect certified.

Experience

ML Engineer — 3D Medical Image Segmentation

Grand Challenge

KiTS19 Grand Challenge

Oct 2024 - June 2025

- Ranked #57 globally on official KiTS19 leaderboard with 0.9129 Dice score for kidney and tumour segmentation from 3D volumetric CT scans.
- Engineered end-to-end nnU-Net training pipeline on Nvidia H200 GPUs; conducted systematic ablation studies across architectures and hyperparameters. Published technical report.

ML Engineer — CV / NLP / RL Practice Repository

Personal

10,000 Hours of ML — Self-Directed Lab

Aug 2024 - present

- Maintain a long-running ML practice repository structured around Norvig's deliberate-practice principle, spanning computer vision, NLP, reinforcement learning, and supervised/unsupervised baselines.
- Implement architectures from scratch (CNNs, transformers, autoencoders, RL agents) alongside HuggingFace + PyTorch standard stacks; each experiment paired with documented results and a brief on architectural fit for the problem class.

ML Engineer — Satellite Image Segmentation

Remote

Kaggle

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

mines.abaj.ai

- Hybrid CSP + ResNet solver, ONNX-deployed for browser inference at 85-95% win rate.

peg-solitaire — Universal Neural Solver

pegs.abaj.ai

- Trained a single ResNet (squeeze-and-excitation + multi-head attention) to play peg solitaire across 8 board topologies via imitation learning on DFS-generated solutions; ONNX-deployed for client-side browser inference, with a research write-up on when neural methods stop helping.

Skills

Deep Learning: PyTorch, TensorFlow, HuggingFace, nnU-Net, U-Net, ResNet, CNNs, Squeeze-and-Excitation, Multi-Head Attention

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

LLM and GenAI: OpenAI API, Prompt Engineering, RAG, Streaming Inference

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

Education

University of New South Wales

Sydney, Australia

Master of Statistics

Feb 2026 - present

- In progress · expected completion Dec 2027.

University of New South Wales

Sydney, Australia

Bachelor of Computer Science (AI), Minor Mathematics

Feb 2021 - Sept 2025

Certificates

AWS Solutions Architect (SAA-C03)

Mar 2026

Amazon Web Services

AI Agents Course

Jan 2026 - Feb 2026

Hugging Face