Jude Mingay

AI / ML ENGINEER & STRATEGIST

Production-grade AI/ML engineer with 3+ years building end-to-end systems across Computer Vision, Edge Deployment, and Custom Deep Learning Architectures. Transformed a rule-based system into a 250 FPS ML pipeline while cutting training costs from $2,500/mo to zero. MSc candidate in AI at the University of Freiburg.

Experience

Senior Machine Learning Engineer
Nov 2025 — Present
Big Picture Software · Freelance

- Transformed a fragile rule-based system into a sophisticated ML pipeline from scratch using custom models
- Achieved **250 FPS** inference on 720p video with L4 GPUs through TensorRT and CUDA memory optimizations
- Cut training costs from **$2,500/mo** on A100s to **$0** using efficient pipelines on free-tier L4 GPUs
- Migrated all models to Apache 2.0 licensing, eliminating legal risk for the project
- Drove strategic decisions on data and AI direction that expanded the project's scope and potential
- Built closed-loop annotation platform with SAM3/RF-DETR auto-labeling and noise injection
- Implemented serverless GPU training via Modal (L4/A10G/A100) with real-time cost tracking

Machine Learning Engineer
Apr — Nov 2025
Big Picture Software · Freelance

- Developed custom object detection models using YOLO and RF-DETR for real-time sports analysis
- Built end-to-end pipelines from data annotation to production deployment on GCP
- Implemented RTMPose for multi-person pose estimation and RAG for coaching insights

Software Engineer
May 2024 — Mar 2025
MZ Automation GmbH

- Developed libraries for IEC 60870, IEC 61850, and ICCP TASE.2 industrial protocols
- Worked across C, C++, C#, and Java in a test-driven environment; contributed to FledgePower (LF Energy)

Junior Software Engineer
Jul 2023 — Apr 2024
Gridcore Labs Lda

- Developed gateway plugins for IEC 61850, ICCP TASE.2, and IEC 60870 protocol translation

Research Assistant
Mar — Jul 2023
Universidade do Algarve · Prof. Marco Campinho

- Trained denoising and segmentation models for fluorescent microscopy images
- Deployed ZeroCostDL4Mic pipelines; independently built training models and analysis scripts

Projects

AIM — AI-Powered Football Coach `aim.io` *Client*
Replaced rule-based system with production ML pipeline. 250 FPS on L4 GPUs, $0 training costs. Multi-modal: detection, pose, GNNs, time series, RAG.

`RF-DETR` `RTMPose` `TensorRT` `GNN` `RAG`

AIM Annotation Suite *Internal Tool*
Closed-loop ML annotation platform. SAM3/RF-DETR auto-labeling with anti-feedback noise injection. Serverless GPU training via Modal. 5 export formats.

`SAM3` `RF-DETR` `Modal` `Active Learning`

FiscFox — German Tax Management `github` *Personal*
5 AI domains on CPU: guardrailed LLM + RAG, TabPFN expense categorization, ML forecasting, OCR receipts. 34K+ lines.

`TabPFN` `Ollama` `RAG` `OCR` `FastAPI`

FledgePower *Open Source · LF Energy*
Gateway plugins for IEC 61850, TASE.2, IEC 104. Protocol translation for power grid interoperability.

AutoML Text Classifier *Research*
Custom proxy search spaces for optimizer selection. DEHB outperformed PriorBand.

HPO4TabPFN *Research*
Smaller, deeper models outperform larger configs. Muon dominated in TabArena.

CONTACT

- Freiburg, Germany
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- linkedin/judemingay
- github/judeam

SKILLS

Machine Learning
Deep Learning · PyTorch · Computer Vision · Object Detection · Segmentation · Transformers · Time Series · YOLO · RF-DETR · RAG

MLOps & Infra
TensorRT · Triton Server · Docker · GCP · Modal · W&B · ONNX

AutoML & Research
HPO · NAS · Meta-Learning · TabPFN · Hugging Face

Programming
Python · Java · C/C++ · C#/.NET · SQL · FastAPI · LangChain

EDUCATION

MSc Artificial Intelligence
University of Freiburg
Oct 2024 — Present

BSc Computer Science
Universidade do Algarve
Sep 2020 — Jul 2023

LANGUAGES

English	*Native*
German	*Native*
Portuguese	*Native*