Jack Duck

🧠 AI Engineer

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AI engineer *with a mathematics background, shipping models to production and keeping inference lean.*

- *Builds RAG and vision systems end to end (data, evaluation, serving).*
- *Optimizes GPUs/CPUs with quantization, batching, and observability.*
- *Turns research ideas into API-ready features with clear guardrails.*

"Turning complex data into actionable signals."

💡 Skills & Languages

Core AI/ML

- Python (NumPy, Pandas, Scikit-learn)
- Deep Learning (PyTorch, TensorFlow)
- NLP (Transformers, SpaCy, NLTK)
- Computer Vision (OpenCV, YOLO)
- Vector Databases (Pinecone, ChromaDB)
- LLM Frameworks (LangChain, LlamaIndex)

MLOps & Tools

- Docker & Kubernetes
- AWS (SageMaker, S3, EC2)
- Model Serving (FastAPI, TorchServe)
- Git & DVC (Data Version Control)
- SQL & NoSQL
- Linux Environment

Languages

- 🇬🇧 English (C1)
- 🇩🇪 German (B1)

🖥️ Professional Experience

Machine Learning Engineer (DeepQuack AI Labs) *10.2023 - Present*

- Fine-tuning LLaMA-2 and Mistral models for domain-specific medical inquiries, improving response accuracy by 45%.
- Building Retrieval-Augmented Generation (RAG) pipelines using LangChain and Pinecone vector databases.
- Deploying ML models to production using Docker and AWS SageMaker, optimizing inference latency by 40%.
- Collaborating with data teams to clean and preprocess terabytes of unstructured text data.

Python Developer (WebPond Automations) *09.2021 - 09.2023*

- Developed robust data scraping pipelines using Scrapy and Selenium to aggregate market data for analysis.
- Built RESTful APIs using Flask to serve legacy statistical models to frontend applications.
- Automated daily reporting tasks using Python scripting, reducing manual workload by 15 hours per week.
- Introduced type hinting (Mypy) and unit testing (Pytest) to the legacy codebase.

📊 Side Projects

QuackGPT

A local chatbot interface capable of analyzing PDF documents offline, utilizing quantized models for CPU inference.

Technologies: PyTorch, HuggingFace Transformers, Streamlit, ChromaDB, Quantization (GGUF)
Link: github.com/jackduckdev/quack-gpt

Migratory Flow Predictor

Time-series forecasting model to predict seasonal bird migration patterns based on historical weather data.

Technologies: TensorFlow, Pandas, Scikit-Learn, Matplotlib, ARIMA

🎓 Education

Applied Physics & Complex Systems (Master of Science) *10.2022 - 07.2023*
Quackow University of Technology

Applied Mathematics (Bachelor of Science) *10.2017 - 06.2021*
Mallard Polytechnic