JOHN DOE

Address ⋄ City, Country

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EDUCATION

School August 2020 - June 2025
Master of Science in Engineering, Something *City, Country*

· Specialization in Image Analysis and Machine Intelligence.
· Grades: 4.74/5.00.

Seconf School February 2024 - August 2024
Exchange Studies *City, Country*

· Courses in: Advanced Probability Theory, Computer Vision, Modern NLP, Reinforcement Learning.
· Grades: 4.74/5.00.

EXPERIENCE

Company August 2022 - Present
Student Test Engineer (Part-Time) *City, Country*

· Conducted comprehensive **testing** of network speaker firmware and software, pinpointing critical defects and verifying new features.
· Utilized **PuTTY**, **Wireshark**, and **Postman** to inspect logs, analyze network traffic, and **debug complex issues** in real time.
· Created and managed bug reports in **Jira**, collaborating closely with developers to expedite critical fixes.
· Contributed to **test automation** efforts in **Python** for Windows-based applications, for regression testing.
· Developed productive relationships with **developers** and **product managers** to streamline testing processes.
· **Mentored** new testers by sharing best practices, troubleshooting methodologies, and QA strategies to maintain high software quality.

PROJECTS

EPFLLaMA: A Lightweight LLM Finetuned on EPFL Curriculum ⎋

· Led development of EPFLLaMA, a specialized language model for STEM education.
· Managed the entire dataset creation process, including data scraping, cleaning, and annotation.
· Implemented advanced fine-tuning techniques including Supervised Fine-Tuning (**SFT**) and Direct Preference Optimization (**DPO**) to enhance model performance and reduce bias.
· Applied Parameter-Efficient Fine-Tuning (**PEFT**) methods, specifically Low-Rank Adaptation (**LoRA**).
· Developed a specialized model for Multiple-Choice Question Answering, improving accuracy by 100% compared to baseline models in STEM-related tasks.
· Implemented **quantization** techniques, reducing model size by 50% while maintaining performance, demonstrating skills in model optimization for practical applications.
· Leveraged **Python** and **PyTorch** along with specialized libraries like **Transformers**, **TRL**, and **Unsloth** for model development, training, and optimization.

Bird Song Classification Using Spectral Analysis and CNNs ⎋

· Led a machine learning project to classify bird species from audio recordings, **achieving a 96.31% accuracy** in identifying three common bird species using advanced AI techniques.
· **Automated** data acquisition by **developing a Python script** that interfaced with the Xeno-canto **API**, streamlining the retrieval of extensive bird audio datasets.
· Implemented **signal processing** and spectral analysis in **MATLAB** to generate high-quality spectrograms and **developed an algorithm** for automated syllable detection, enhancing data quality and processing efficiency.
· Enhanced spectrogram data reliability by **applying image processing, data augmentation, and feature extraction** techniques in **Python**, optimizing inputs for convolutional neural network training.

· Designed and optimized multiple convolutional neural network (**CNN**) architectures using the **Keras library** in **Python refining models** to accurately classify spectrograms and selecting the best-performing model.

Parallel n-step Advantage Actor-Critic ↗

· Implemented a scalable Advantage Actor-Critic (A2C) algorithm using **PyTorch**, achieving optimal policy convergence for both discrete and continuous control tasks.
· Engineered **parallel training** architecture with multiple workers and n-step returns, resulting in **4x faster training** through innovative **batch processing**.
· Developed sophisticated reward handling with stochastic rewards and **reinforcement learning** advantage estimation, demonstrating deep understanding of RL foundations.
· Built comprehensive visualization pipelines using **Matplotlib** and **Gymnasium** to track value functions and enable data-driven hyperparameter optimization.
· Achieved 100% success rate in CartPole while reducing training time from minutes to seconds through effective **parallelization**.

SKILLS

Programming languages	Java, MATLAB, Python, MySQL, C
Machine Learning	PyTorch, Keras, Transformers, TRL, Unsloth, NumPy, SciPy
Version Control	Git
Languages	Swedish, English, Arabic