KWABENA ARTHUR

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AI/ML Engineer with 5+ years of experience in commercial and research machine learning. Practical experience in a wide range of machine learning algorithms, scoping and validating data pipelines, and model development and deployment. Strong background in incorporating physics into data-driven algorithms.

EDUCATION

Massachusetts Institute of Technology (MIT)
B.Sc. in Mechanical Engineering and Physics
M.Sc. in Mechanical Engineering

TECHNICAL SKILLS

Generative AI, LLMs, Computer Vision, DNNs, Python, C++, Pytorch, Tensorflow, Random Forest, XGBoost, Scikit Learn, Jupyter, AWS, AWS Sagemaker, Google Cloud, Docker, CI/CD, Dash, Spark, SQL, Github

WORK EXPERIENCE

Turnkey Advanced Engineering, Lead Engineer (Dec '23 - Present)

- Spearheaded the design of an AI system integrating cameras, web platforms, and analytical models, tailored for comprehensive analysis of soccer matches.
- Led the development of convolutional neural networks (CNNs) for event, players, and ball tracking.
- Created robust data pipeline to seamlessly receive and process live video streams
- Utilized data-driven insights to measure player performance and tactic effectiveness.
- Deployed machine learning systems using AWS and Linode cloud platforms.
- Established meticulous annotation strategy, ensuring consistency and accuracy.
- Led code reviews and implemented CI/CD to maintain quality and streamline development.

Samsung SmartThings, Computer Vision & Machine Learning Research Engineer (Oct '22 - Feb '24)

- Developed and deployed XGBoost model for presence state detection of user locations.
- Conducted in-depth literature reviews, feasibility studies and documented designs for state-of-the-art recommender models and large language models (LLMs).
- Developed a scalable automated dataset creation pipeline, handling billions of events daily.
- Implemented rigorous data validation and strict compliance to Samsung data security requirements.
- Implemented monitoring for evaluating data drift and ensuring dataset representativeness.
- Collaborated within an Agile team environment, continuously innovating and delivering results.

Labby Inc, Head Data Scientist (Jun 21 - Oct 22)

- Developed and deployed regression and classification models to assess milk composition and cow health based on milk spectral measurements and historical cow data.
- Applied unsupervised learning to explore data subdomains for evaluating performance.
- Pioneered physics-based feature engineering techniques further enhancing model performance.
- Investigated and mitigated sources of data variability, leading to improved fidelity and performance.
- Worked closely with end users and testing labs to collect training data and product feedback.

MIT Mechanical Engineering Department, Research Associate (Aug 20 - Jun 21, Aug 17 - Sep 18)

- Developed computer vision models for tomography, phase retrieval, 3D reconstruction, image enhancement, fake image detection and scene text recognition.
- Generated high-accuracy simulations to augment datasets across multiple projects.
- Conducted extensive research and presented on latest advancements in artificial intelligence.
- Published research outcomes in esteemed journals and presented to sponsors and academic audiences.