Mohamed Martini

Skills

- **Machine Learning**: Tensorflow, PyTorch, NumPy, Pandas, Scikit-learn, SciPy
- **Cloud & Data**: Bigquery, Cloud Storage, Vertex AI, Cloud Functions, Dataflow, Model Registry
- **ETL**: Apache Beam Python, PySpark
- **DevOps & CI/CD**: Docker, Github workflows/actions, automated testing, releases, deployment, and documentation.
- **Python**: Cross-platform dependency management of large codebases, PEP-compliant practices.

Work Experience

Machine Learning Engineer | Pison Technology *Full-time · Oct 2022 - Present · 2 yrs 5 mos*

- Ran 1,200+ TensorFlow experiments for sleep stage classification, improving the baseline F1-score by 15% (ongoing). Developed two custom loss functions to address class imbalance. Implemented a custom attention layer and used it for feature mining, improving performance while reducing the feature set by an order of magnitude.
- Developed and optimized real-time biosignal gesture detection models. Wrote Cythonized extension modules, and vectorized bottleneck functions in the gesture pipeline, significantly improving the speed of online prediction and offline modeling.
- Led a “Hackaweek” project with two colleagues to implement a state-of-the-art domain-invariant classification network with adversarial training in PyTorch, following the approach outlined in its original manuscript.
- Led the adoption of BigQuery as a data warehouse solution to streamline data access and management.
- Deployed and monitored streaming and batch ML models using Google Model Registry and Cloud Run Functions.
- Wrote a scalable ETL pipeline using Apache Beam which brought down the compute time of 56 GB of data from 2 days to 15 minutes at a cost of 25 cents.
- Standardized the Python codebase, CI/CD workflows, and dependency management, enabling seamless collaboration across operating systems. Implemented automated documentation, versioned releases, and platform-specific wheels publishing to Google Artifact Registry.
- Maintained cross-team communication to ensure consistency and optimal integration of ML solutions.

Research Assistant | University of Massachusetts Lowell *Part-time · Jan 2021 - June 2022 · 1 yrs 6 mos*

- Exalabs Team: Researched the literature on multi-agent networks and cooperative dynamics. Implemented Reinforcement Learning agents and environments for multi-agent search and rescue (SAR) simulations. Analyzed top-down vs. bottom-up cooperation structures, identifying their respective strengths and weaknesses.
- Advanced Graduate Project: Researched, compared, and recommended edge-compatible image classification, segmentation and object detection solutions using multi-modal data. Learned the YOLOv3 architecture and ran numerous object detection experiments on a computer cluster. Doubled the dataset size through generative AI, public dataset mining, and data augmentation.

Engineering Co-Op | Rockwell Automation Inc. *Full-time · Jan - July 2020 · 6 mos*

- Co-authored Python hardware test scripts and GUI.
- Wrote data visualization scripts with Python and Matlab, and discussed results with management.

Education

- **M.S. Computer Engineering** | University of Massachusetts Lowell · Jun 2022 · GPA 4.0
- **B.S. Electrical Engineering** | University of Massachusetts Lowell · May 2021 · GPA 3.8
- **B.S. Biology** | University of Massachusetts Lowell · Dec 2019 · GPA 3.5

References

References available upon request.

Email: mhdmart1@gmail.com

Website: https://mhdmartini.github.io/resume/latest/