Thomas Ciardi

EXPERIENCE

Louis Stokes Medical Center VA **Cleveland, OH**
Data Scientist (June 2023 – Present)

- Developed multi-modal predictive models integrating unstructured notes, patient metadata, and device signal measurements to analyze adherence patterns and optimize device utilization
- Implemented rule and tree-based algorithms to discover high adherence patient subgroups with 93% precision
- Engineered Azure-based data preprocessing pipelines and workflows to reduce analysis time by 52%

Materials Data Science for Stockpile Stewardship (MDS3) **Cleveland, OH**
Applied Data Science Research Assistant (Jan 2022 – Dec 2024)

- Developed domain-informed spatiotemporal graph neural networks to improve sensor imputation and forecasting in solar energy and water flow grids reducing prediction error by 24% over baseline models
- Designed a weak supervision framework to reduce annotations by 8x for segmentation of polymer growth in AFM videos and melt pools in high-speed camera imaging while retaining over 0.9 mIoU
- Managed HPC infrastructure for 100+ researchers; maintained a 2.5 Petabyte Hadoop cluster, CI/CD pipelines for Docker/Singularity containers, Python SLURM wrappers, and Open OnDemand web apps
- Maintained ETL pipelines to orchestrate migration of 50TB of data from GCP to on-premise Hadoop clusters using Terraform and Spark to reduce operational overhead by 40%

Lawrence Livermore National Laboratory **Livermore, CA**
Data Science Fellow (May 2024 – August 2024)

- Architected sensor fusion and signal representation learning pipelines for time series feature extraction in pyrometer, acoustic, and photodiode sensors to characterize laser powder bed fusion process stability
- Engineered ETL pipelines leveraging Apache Arrow in-memory representations, Dask distributed multiprocessing framework, and RAPIDS GPU-accelerated computing to achieve 10x reduction in storage requirements and 102x improvement in processing speeds
- Instantiated CNN and classical ML models to achieve 96% defect anomaly detection in prints
- Reduced print distortion predictions by two orders of magnitude compared to Ansys simulations using Gaussian Processes and parameterized graph neural network based reduced-order modeling

NASA Glenn Research Center **Cleveland, OH**
Applied Machine Learning Intern (January 2023 – August 2023)

- Fine-tuned microscopy image foundation models for accelerated materials design and discovery
- Engineered image regression and activation map framework for tensile stress prediction and failure localization in fractography images of steel welds achieving a 0.78 R^2
- Implemented large-scale instance segmentation models with SAHI for melt pool detection in radiography images
- Adapted 3D texture-based autoencoders to generate synthetic microstructure volumes from simulated 2D slices

RIGID Tools **Elyria, OH**
Data Science Co-op (Aug 2021 – Jan 2022)

- Developed and optimized SQL ETL pipelines using Azure to reduce historical inventory queries by 40%
- Implemented real-time anomaly detection in drain inspection camera feeds using computer vision
- Improved support case response times by 35% through an email classifier built with BERT and GPT-3

INSIGHT2PROFIT **Beachwood, OH**
Summer Analyst (June 2021 – Aug 2021)

- Developed a React-based pricing tool used by client sales representatives to recapture $95,000 in revenue
- Integrated frontend with R-based pricing models through API queries for real-time data access
- Created Power BI dashboards to reveal 32% tool adoption rates and pricing distortion in 26% of TTM revenue

SKILLS

Languages: Python, R, SQL, Java, Golang, JavaScript, HTML/CSS

Frameworks/Libraries: PyTorch, Tensorflow, Keras, MLFlow, Optuna, Spark, React, Flutter, Shiny

Technologies: GCP, Docker, Singularity, Hadoop, Terraform, Azure, PostgresSQL, SLURM, Git, PowerBI, Tableau

EDUCATION

Case Western Reserve University **Cleveland, OH**
Master of Science in Computer Science - *(GPA 4.0/4.0)* Dec 2024
Bachelor of Arts in Computer Science and Cognitive Science - *(GPA 3.8/4.0)* Jan 2022