

Tony E. Astuhuaman Davila

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EDUCATION

Missouri State University August 2024 - May 2026

Master of Natural and Applied Science in Computer Science & Materials Science

Missouri State University August 2021 - May 2024

Bachelor of Science in Computer Science, Minor in Mathematics (Magna Cum Laude)

- Honors: Co-Founder & President ACM, IEEE CIBCB 2024 Best Paper, ICPC Contestant, Stanford AI (CS221)

WORK EXPERIENCE

City Utilities September 2025 - Present

IT Business Intelligence Intern (Data Science Focus) Springfield, MO

- Built end-to-end ML pipelines for electric outage prediction using multi-year outage, weather, asset, GIS, and alert datasets, supporting storm-response planning and restoration workflows.
- Developed and evaluated forecasting/classification models including XGBoost, Random Forest, PCA/PLS pipelines, and sequence-style experiments across cross-year validation settings to improve severe-weather event detection.
- Engineered scalable PySpark and Delta Lake workflows in Databricks to transform high-dimensional weather features, outage assessments, and GIS assets into reproducible modeling datasets.
- Helped deploy the team's first ML modeling infrastructure using MLflow, Unity Catalog, registered model versions, and repeatable experiment tracking for baseline models and production-readiness discussions.
- Produced inference-ready tables, diagnostic reports, and Power BI-ready datasets to support dashboard integration, model monitoring discussions, and collaboration with data engineering, GIS, and electric operations teams.

Missouri State University - PAMS Department August 2024 - Present

Graduate Research Assistant Under Dr. Sakidja Springfield, MO

- Built an end-to-end AI drug-design pipeline integrating generative molecular models, docking, molecular property filtering, and molecular dynamics evaluation to prioritize candidate compounds from large generated batches.
- Automated reproducible Python/GPU workflows and developed ranking tools combining docking scores, molecular properties, and simulation stability metrics to support data-driven candidate selection.

Entiendo (Neo '23) June 2025 - August 2025

Software Engineer Intern Chicago, IL (Remote)

- Shipped production AI features and evaluated model outputs in real product workflows, improving reliability and debugging through typed validation and monitoring.
- Improved system reliability by enforcing typed API contracts (Zod) and structured validation, reducing runtime errors and debugging time.
- Built real-time AI workflows using WebSockets and async pipelines for long-running model tasks and collaborative features.
- Designed modular architecture for adding new AI workflows quickly, reducing engineering overhead for feature expansion.

Computational Learning Systems Lab January 2024 - July 2024

Bioinformatics Research Assistant Under Dr. Tayo Obafemi-Ajayi Springfield, MO

- Published Best Paper (IEEE CIBCB 2024) by building an explainability framework, "[Centroids](#)," for dimensionality reduction outputs, measured by conference award and reproducible analysis pipeline.
- Improved classification performance by applying balancing + feature selection + model interpretation (e.g., SHAP-style analysis), measured by +14% F1 on benchmarked biomedical datasets.
- Accelerated experimentation by automating hyperparameter sweeps for DR methods (PCA/UMAP/t-SNE), measured by faster iteration across hundreds of configurations.

PROJECTS

Explainable Autonomous Vehicle Decisions (XAVD) | [Github Repo](#) | (PyTorch, BDD100K, MetaDrive) 2025

- Built perception + explainability pipeline and analyzed failure modes, measured by interpretable saliency outputs across simulated scenarios.

PCAFORMER (Vision Transformer Efficiency) | [Github Repo](#) | (PyTorch) 2025

- Reduced attention compute by implementing PCA-based token compression in transformer layers, measured by improved compute-accuracy tradeoff in benchmarks.

SpeakEasy | [Github Repo](#) | [Devpost](#) | (React, FastAPI, GPT-4-turbo, HumeAPI) 2024

- Built a real-time speech coaching prototype combining audio sentiment + posture signals, measured by live feedback during recorded speeches.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, SQL, C++, React, Tailwind, NodeJS

Frameworks/Libraries: PyTorch, XGBoost, scikit-learn, Spark/PySpark, Databricks, MLflow, FastAPI

Tools/Cloud: AWS, Azure, Docker, Databricks, PowerBI, Git