Tristan Rech

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Email : tristanrech02@gmail.com
Location: Austin, TX

Experience

- **Dell Technologies** — Austin, TX
  Machine Learning Engineer — MLSecOps Team — *Aug. 2024 – Present*

  Technologies Used: Python, Scikit-Learn, RAG (ChromaDB), Embedding Models, Docker, Kubernetes, Airflow
  - Architected and implemented an AI service that combines ML classifiers and retrieval-augmented generation (RAG) to validate string-based vulnerability exception justifications, reducing improper approvals in production by 75%
  - Built an explainable AI module that combines classifier predictions, SHAP values, and a custom knowledge base to generate human-readable summaries—reducing triage time for 1.9M+ vulnerabilities across 965 product teams
  - Co-led internal evaluation of third-party enterprise AI security platforms, focusing on automatic red-teaming of LLMs, LLM runtime protection, and model file vulnerability scanning
  - Translated evaluation outcomes into technical findings that clarified platform risks and ROI, securing CIO-level approval and driving a significant enterprise investment in a company-wide AI security platform rollout

- **IMICS Research Lab - Texas State University** — San Marcos, TX
  Machine Learning Researcher — Advisor: Dr. Vangelis Metsis — *May 2022 – May 2024*

  Technologies Used: Python, TensorFlow, Scikit-Learn, UMAP, Pandas, NumPy, Dash, Flask
  - Developed ALVI (Assisted Labeling Visualizer), a browser-based labeling tool that reduced manual time-series data labeling time by 75% through synchronized video, sensor data, and feature-map visualizations
  - Implemented a semi-supervised pipeline using custom 1D CNNs to improve labeling accuracy; enabled ALVI to auto-label time-series data, identify low-confidence predictions, and streamline human-in-the-loop corrections
  - Co-authored an IEEE published paper presented at ICASSP 2023 in Greece, detailing our R&D of ALVI

- **DataLab - Texas State University** — San Marcos, TX
  Machine Learning Researcher — Advisor: Dr. Jelena Tešić — *Oct. 2023 – Feb. 2024*

  Technologies Used: Python, Scikit-Learn, OpenCV, Pandas, NumPy
  - Collaborated on an interdisciplinary project analyzing algal diversity using FlowCam microscopy cell imaging data to clarify dilution effects during osmotic treatments
  - Developed a preprocessing pipeline for microscopy images, using thresholding and edge detection to reduce noise
  - Extracted Hu-moment features from cleaned images and applied dimensionality reduction (PCA) and K-Means clustering to group algal cells by type, reducing analysis time from hours to minutes
  - Presented research methodologies as guest lecturer in a PhD-level Computer Vision course (CS 7323)

- **Dell Technologies** — Austin, TX
  Software Engineering Intern — Solutions Selling Engineering Team — *May 2023 – Nov. 2023*
  - Led research and development for REST-to-GraphQL API migration in an internal sales platform supporting Dell's global sales teams, optimizing query performance and reducing endpoint complexity through targeted data retrieval
  - Implemented proof-of-concept using C#, JavaScript, TypeScript, and Angular that became the standard migration workflow across multiple engineering teams, receiving recognition from senior leadership

Technical Skills

Languages: Python, SQL, JavaScript, C++, Java
Tools: Docker, Kubernetes, Apache Airflow, MLFlow, Langfuse, Flask, Git, Jupyter
Libraries: Pandas, NumPy, Scikit-Learn, TensorFlow, PyTorch, XGBoost, OpenCV, Dash
Concepts: MLOps, CI/CD, Model Deployment, Feature Engineering, Experiment Tracking
Certifications: Google Advanced Data Analytics, Math for ML and Data Science (DeepLearning.AI)

Education

- **University of Texas at Austin** — Austin, TX
  Master of Science in Computer Science ***(In Progress)*** — *Jan. 2025 – Dec. 2026*

  Relevant Coursework: Advanced Linear Algebra, Machine Learning, Deep Learning

- **Texas State University** — San Marcos, TX
  Bachelor of Science in Computer Science, Minor in Applied Mathematics — *Jan. 2022 – May 2024*

  Relevant Coursework: Machine Learning, Computer Vision, Data Mining & Information Retrieval, Prob & Stats