

Trina Xavier

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EDUCATION

University of Massachusetts Dartmouth

Master of Science in Data Science

TKR College of Engineering and Technology

Bachelor of Technology in Electronics & Communication Engineering

Dartmouth, MA

Aug 2023 - May 2025

Hyderabad, India

Jun 2019 - Jul 2023

EXPERIENCE

OceanHackWeek 2025 — Research Fellow, Univ. of Washington

Seattle, WA

Python; xarray/Zarr; PyTorch; UNet/DINCAE; QA/QC (tests, profiling)

Aug 2025

Built a reproducible xarray/Zarr pipeline to gap-fill cloud-masked Chl-a with U-Net/DINCAE; added quality checks and a light test harness (*unit tests + profiling*), cutting manual prep by $\sim 45\%$ and producing consistent, analysis-ready outputs (validated on held-out time/space).

Aloft Systems — Robotic Sail Simulation Engineer (Computer Vision)

Boston, MA

Python; Raspberry Pi sensor fusion; Kalman filtering; CNN-LSTM; timeseries forecasting

Jun 2025 – Present

Built a Raspberry Pi sensor-fusion pipeline (30 FPS camera + wind sensors, ~ 33 ms sync) and modeled wind with Kalman filtering + optical-flow CNN-LSTM, improving wind-speed forecast accuracy by $\sim 15\%$; standardized calibration documentation so others could reproduce results.

School for Marine Science and Technology — Machine Learning Intern

New Bedford, MA

Python; PyTorch; VIAME/Tator; transfer learning; object detection

May 2025 – Aug 2025

Collaborated with SMAST scientists to apply transfer learning in PyTorch and VIAME, finetuning pretrained computer vision models (Tator \rightarrow VIAME) with integrated QA/QC workflows, improving scallop detection recall by 20% and precision by 15%, and enhancing reproducibility and survey analysis to support sustainable fisheries management.

University of Massachusetts Dartmouth — Graduate Teaching Assistant,

Dartmouth, MA

Tableau dashboards; SQL; KPI design; data storytelling; performance tuning

Jan 2025 – May 2025

Evaluated analytics coursework and optimized Tableau data extracts for performance; instructed 30+ graduate students in KPI dashboard development, interactive visualization design, and applied data storytelling techniques.

UMassD STEM Learning Lab — Academic Tutor & Mentor

Dartmouth, MA

Mentoring; tutoring; study planning; math/stats foundations; communication

Dec 2023 – May 2025

Tutored 15+ STEM undergraduates weekly, improving academic performance and increasing lab engagement by 30%.

PROJECTS

GPU-Accelerated 3D Diffusion Monte Carlo Solver | Python, CUDA, OpenMPI, HPC

Dec 2024

Optimized a GPU-CPU 3D Monte Carlo solver to $49\times$ over a singlecore CPU baseline and added regression checks and eval dashboards (error bounds, wallclock, cost/step) to turn performance gains into actionable posttraining parameters.

Benchmarking Transformer & CNN Ensemble for Imbalanced Skin Lesion Classification

May 2025

Macro-F1 +6 pts on HAM10000 (0.71 \rightarrow 0.77) via morphology-faithful augments and class reweighting; accepted $\sim 2\%$ training overhead (SAM+EMA) for rare-class recall, with reproducible eval harness and data/version controls.

Hospital Database Management System | MongoDB, SQL, Python, Flask

Dec 2023

Designed a hospital DB on MongoDB with indexed schemas and validation; built deterministic CSV/JSON import/export and reduced P95 query latency while cutting ingestion errors—improving clinician access and audit reliability.

AI-Powered Dialect Classification | Librosa, NLP, Torchaudio, Transformers

Sep 2024

Fine tuned Wav2Vec2 (Hugging Face) for Danish accented, Scottish, and other English varieties; accuracy 82% \rightarrow 90% with a reproducible eval harness (per dialect F1, CIs), fixed seeds, and versioned data.

SKILLS

LLM Data Ops & Evaluation: prompt & rubric design; instruction/response writing; preference/safety labeling

Multimodal Annotation: text/image/video labeling; span/entity/relationship tags, taxonomy design

Python/SQL & Automation: Python; SQL (CTEs, window functions); batch scripts; Airflow/Databricks basics

ML & Data Science: PyTorch, TensorFlow; NLP/LLMs & RAG, model evaluation (ROC/PR, calibration)

BI & Cloud Tooling: Tableau; AWS (S3, Redshift, EC2, SageMaker); GCP BigQuery; Docker; Git/Bitbucket

Soft Skills: Stakeholder communication; rapid learning & adaptability; ownership, quality mindset (SOPs, QA reviews)