

Isabel Moore

US Citizen · [REDACTED] · College Station, TX

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EDUCATION

Texas A&M University

Master of Science in Computer Engineering

Graduation: May 2026

Thesis: Meta Reinforcement-Learning based Contextual Adaptive-Control

Bachelor of Science in Mechanical Engineering

Graduation: May 2024

EXPERIENCE

Systems Design Intern | [REDACTED] Team

May 2025 - Present

Northrop Grumman

- Optimize initial conditions for [REDACTED], supporting both [REDACTED] models within [REDACTED] framework.
- Design modular, multi-stage system architecture supporting interchangeable workflows and design requirements.
- Train LSTM and Transformer models for [REDACTED] prediction, achieving $< 0.3^\circ$ error through parallel execution and SLURM-based deployment for simulation generation.

Controls & Resilient Networks Researcher

May 2024 - Present

Bush Combat Development Complex

Bryan, TX

- Lead reinforcement learning-based differential drive controller for autonomous navigation, successfully bridging the sim-to-real deployment to handle highly variable surface conditions.
- Optimize policy robustness across diverse friction coefficients ($0.1\mu - 1.0\mu$), achieving $> 96\%$ mission completion rate and maintaining $< 6\text{cm}$ cross-track error (CTE) across all tests.

Computer Vision Researcher

Aug 2024 - May 2025

Computer Vision & Robotics Laboratory

College Station, TX

- Collaborated with University of Michigan Mcity researchers to optimize the autonomous vehicle data pipeline, improving image preprocessing, model training efficiency, and research workflows for perception tasks.
- Integrated multi-task learning models from HuggingFace and custom pre-release models, enhancing depth estimation and multi-modal perception capabilities for autonomous driving research.

Guidance, Navigation, and Controls (GNC) Researcher

Sep 2023 - May 2024

Connected Autonomous Safe Technologies (CAST) Laboratory

College Station, TX

- Developed Kalman Filter (KF) state estimation framework to mitigate GPS spoofing attacks, reducing localization errors to less than 3% under spoofed conditions.
- Engineered Dead-Reckoning navigation system for off-road AVs, reducing yaw error from 180° to $2-8^\circ$ (97% reduction).

Team Lead

Aug 2023 - Jun 2024

General Motors-SAE AutoDrive Challenge™ II

Ann Arbor, MI

- Led 6-person team in path planning and ADAS optimization, securing 2nd place in international competition.
- Enhanced Pure-Pursuit lateral control algorithms, enhancing vehicle stability and reducing path error by 70%.

Fellow for UTSR Gas Turbine Industrial Program

May 2023 - Aug 2023

Southwest Research Institute

San Antonio, TX

- Redesigned microturbine for UAV propulsion, achieving 98.9% accuracy in predictive CFD analysis alignment with physical testing.
- Presented findings at industry conference (200+ attendees), providing recommendations for combustion pressure distribution and fuel system optimization.

PUBLICATIONS & OPEN SOURCE WORK

- Mcity Data Engine: Iterative Model Improvement Through Open-Vocabulary Data Selection, IEEE Intelligent Transportation Systems (ITSC), Gold Coast, Australia, 2025. [paper] [GitHub]
- Using Sensor-Health-Aware Resilient Fusion for Localization in the Presence of GPS Spoofing Attacks, IEEE International Conference on Cyber Security and Resilience (CSR), London, United Kingdom, 2024. [paper]

TECHNICAL SKILLS

- **Programming Languages:** Python, C/C++, Java, Shell, SQL/SQLite
- **Developer Tools & Frameworks:** Git, Docker, ROS1/ROS2, Linux, SLURM, TensorFlow, PyTorch, Voxel51
- **Simulation/Design:** Gazebo, RViz, CARLA, LabVIEW, MATLAB/Simulink, SolidWorks, ANSYS, AutoCAD