Tameem Uz Zaman

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Expected Graduation: Dec 2025 | Edinburg, TX, 78541

EDUCATION

University of Texas Rio Grande Valley, USA **Sep 2024 - Present**
Master of Science, Computer Science | *Roles: Teaching Assistant for Data Structure & Algorithms.* **GPA: 3.71/4.0**
Courses: Deep Learning, Reinforcement Learning, Digital Image Processing, AI in Image Processing, Computer Architecture and Algorithm Design.

University of Technology Malaysia, Malaysia **Sep 2019 - Feb 2023**
Bachelor of Science, Computer Science **GPA: 3.7/4.0**
Leadership Roles: Student Mentor, Security Club President, Volunteer at University Networking Competition.

TECHNICAL SKILLS

Languages: C++, Python, CUDA, Java, Javascript, Typescript, AngularJS, Angular **CI/CD Tools:** CMake, Git
Libraries: PyTorch, Ray, XGBoost, FastAPI, numpy, sklearn, pandas, matplotlib **Database:** MySQL, PostgreSQL
Tools and APIs: ROS, Gazebo, Argos3, RViz, AWS SageMaker, LangChain, Hugginface Transformers
Deep Learning Architectures: Reinforcement Learning, Transformers, ResNet, LLMs

WORK EXPERIENCE

QualGent Inc, USA | ***Research Intern*** **Sep 2025 - Nov 2025**

- Researched and implemented **LLM-based** solutions to automate mobile app testing and generate test cases.
- Developed intelligent **GUI agents** using LLMs to perform tasks and validate workflows on GUI applications.

MARS Lab, University of Texas Rio Grande Valley | ***Research Assistant with Dr. Qi Lu*** **Sep 2024 - Sep 2025**

- Designed and implemented a **penalty-based reward system** for swarm robots, improving foraging efficiency by **15%** through optimized decision-making under resource constraints.
- Simulated **multi-agent robotic behaviors** in ARGoS using **C++** and **ROS2**, accelerating experimentation in **Federated Reinforcement Learning** environments.
- Developed and tested robotic coordination algorithms on **Linux-based simulation frameworks**, aligning with scalable real-world robotics systems like **Amazon's Kiva bots**.

PROJECTS

- **PRD-LLM-Evaluation (LLM Fine-Tuning) -** Tested **PRD algorithm** in mt-bench datasets to evaluate 5 different LLMs. Used **prompt engineering** to generate score after evaluating each LLM response in **pair-wise evaluation**. Used **OpenAI** and **Gemini API** calls to produce and evaluate answers. This evaluation is later used for better answers using **RLHF**.
- **Collision-Free Collaborative Foraging Algorithm (CPFA) -** Developed collision-free collaborative foraging algorithm for **autonomous robot swarms** with custom CPFA logic controllers. Implemented distributed **genetic algorithm** optimization using **MPI across 6-host/24-core cluster** for evolutionary parameter tuning. Engineered automated build pipeline with **CMake** for cross-platform deployment and created XML-based experiment configuration system. Utilized advanced techniques including swarm intelligence algorithms, distributed evolutionary computing, **multi-agent** coordination, and **parallel processing** for **large-scale robotic** simulation experiments.
- **Medical Image Segmentation on COVID CT Scans using UNet -** Implemented and evaluated an **UNet** model on COVID CT Scan images. Implemented a **Dice Score Evaluation** to get the best segmentation model. Leveraged PyTorch's **automatic mixed precision** method to speed up training and reduce GPU memory usage. Performed **5-Fold Cross Validation** which provides reliable model performance.
- **Enhancing GAN Stability and Image Quality: A Comparative Study of GAN Variants for Image Generation -** Implemented and compared three **GAN** variants (**Baseline GAN, DCGAN, WGAN-GP**) for generating images of handwritten digits (**MNIST**) and faces (**CelebA**) using **PyTorch**. Evaluated models using Fréchet Inception Distance (**FID**) score and visual inspection, achieving a best FID score with WGAN-GP on CelebA. Conducted experiments to improve training stability, including **hyperparameter tuning** and label smoothing.

PUBLICATIONS

- **Training Adaptive Foraging Behavior for Robot Swarms with Distributed Neuroevolution of Augmented Topologies** - CMASDL Workshop **AAAI 2025**
- **Training Robot Swarms for Adaptive Foraging in Environments with Obstacles** - Robots in the Wild Workshop **ICRA 2025** and Conference **IEEE ICMA 2025**, **IEEE IRCE 2025**