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T Vishwaak Chandran

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Education

B.Tech in Computer Science Engineering
Amrita Vishwa Vidyapeetham, Amritapuri
MS in Computer Science
University of Texas, Arlington
Topic: Visual feedback for Visually impaired Users operating Teleoperated robots (Advised by: Nicholas Gans)

Publication/ Acheievements

- Thamaraiselvan, Vishwaak Chandran, Salunkhe, Param Dhairasheel, Theofanidas, Michail, Gans, Nicholas(Nick). "Virtual Fixtures for Teleoperated Robots for the Visually Impaired." IEEE RO-MAN 2025, Eindhoven, Netherlands, Aug 2025. (Kazue Tanie Award)
- Thamaraiselvan, Vishwaak Chandran, Salunkhe, Param Dhairasheel, Theofanidas, Michail, Gans, Nicholas. "Virtual Fixtures for Teleoperated Robots for the Visually Impaired." Human-Centric Robotics for Telepresence Workshop, IEEE ICRA 2025, Atlanta, GA, United States, 2025.
- Awarded Facebook full scholarship for Udacity Deep Learning Nanodegree (2019)
- Attended Summer School on Data Mining Cybersecurity at Ben-Gurion University under full scholarship.

Recent Work Experience

Machine Learning Intern - Zocket,Chennai **November 2022 — May 2023**

- Constructed a video-based content delivery system which uses HLS streaming and FFmpeg to create and deliver custom content video within 1 second.
- Created a CLIP + GPT-2 based tool to automate the process for checking an advertisement's contents, reduce manual QA.
- Fabricated a custom tool to generate and automate the process of video creation with OpenCV.

Research Intern - Zoho,Chennai **August 2021 — July 2022**

- Developed and tested neurosymbolic algorithms in Python to help in program synthesis.
- Introduced a new pair-based training method in PyTorch to train the neural network model which improved the accuracy of the model by 10 percent
- Built a new data structure based on hierarchical trees in C, with a Python wrapper for seamless integration.

Research Assistant - UTARI **September 2024 — Present**

- Developed visual feedback and haptics mechanisms for shared autonomy controller, enhancing user interaction and system usability
- Reduced ML inference latency from 500ms to 10ms using TensorRT for real-time applications.
- Implemented convex hull-based segmentation outputs, streamlining and simplifying data visualization for end-users
- Engineered haptic feedback solutions to guide users in identifying obstacle proximity and direction, increasing system safety and efficiency.
- Built a simulation in Isaac sim to model artificial potential field, which improved the performance of the agent by 20 percent.

Project Summary

UGV Competition - [Not a Boring Competition]- 2024

- Led the integration of SLAMtoolbox and NAV2 for autonomous navigation using ROS2.
- Integrated visual odometry with the camera and LIDAR to enhance localization accuracy.
- Conducted comprehensive testing and validation to ensure the UGV's autonomy across diverse environments.
- Implemented dynamic obstacle removal with object detection model to generate a precise global map.

6-Wheel Skid Steer Platform

- Implemented a dead-reckoning-based odometry system utilizing PID control.
- Developed a Pixhawk-based navigation system for waypoint following.
- Collaborated on the integration of a microcontroller and motor drivers to drive the vehicle.

Difussion Models

- Developed a workflow capable of overlaying any dress on a human model in 5 seconds.
- Trained a set of diffusion models base with LORA/Dreamboth training to generate photorealistic backgrounds for product display.

EUS ML

- Designed and implemented robust ETL and model evaluation pipelines, ensuring seamless data processing and performance assessmen
- Trained and evaluated different deep learning approaches such as one-shot learning and multi-head CNN's.
- Developed and optimized prediction smoothing algorithms to enhance model accuracy and reliability in real-world applications.

Skills

Programming Languages	C, C++ Python, Bash, Rust
Libraries & Frameworks	PyTorch, TensorFlow, OpenCV, RLlib, Flask, Django, ROS2
Version Control	Git, Mercurial