Donipolo Ghimire

Graduate Student Researcher

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PhD student in Controls, Dynamics and Optimization, *University of California Irvine*	2020 - Present
Master of Science in Mechanical and Aerospace Engineering, *University of California Irvine*	2020 - 2022
Bachelors of Science in Mechanical Engineering *Howard University*	2015 - 2019

SKILLS

Tools and Languages	Python, PyTorch, MATLAB, C++, Robots OS (ROS), Node JS, Drake
Research Interest	Motion Planning, Trajectory Optimization, Machine Learning, Sensor Fusion, Computer Vision, Graph Theory
Coursework	Machine Learning, Graph Theory, Motion Planning, Optimal Controls, Optimization, State Estimation and Filtering,Probabilistic Learning, Non Linear Controls, Linear Algebra, Dynamics

PUBLICATIONS

1. **Ghimire, D.** and Kia, S.S., 2023, December. Stein Coverage: a Variational Inference Approach to Distribution-matching Multisensor Deployment. https://arxiv.org/pdf/2312.07001.pdf

2. **Ghimire, D.** and Kia, S.S., 2023, June. Optimal Multi-Sensor Deployment via Sample-Based Quality-of-Service Distribution Matching. In 2023 European Control Conference (ECC) (pp. 1-6). IEEE. 10.23919/ECC57647.2023.10178375

TECHNICAL EXPERIENCE

Graduate Student Researcher
University of California Irvine

SEP 2020 — Present
Irvine, CA

- Engaging in pioneering efforts to develop transformative deployment strategies for multi-robot systems while also creating policies for motion planning and coverage path planning.
- Achieved a significant milestone in resolving assignment problems to maximize the coverage service of UAVs by successfully matching the orientation and position of each UAV footprint. This work was showcased at the ECC 2023 in Romania.

Visiting Graduate Student Researcher
NASA Jet Propulsion Laboratory

JUL 2022 — NOV 2022
La Cañada Flintridge, California

- Worked with a team to detect and localize the objects of interest like rocks, minerals, and geologic landforms using visual, thermal or wireless signals in perceptually degraded environments like planetary surfaces or caves of Mars and Moon under network and computation constraints.
- Deployed a pipeline for detection and relative object localization module that can be easily integrated into state of the art robots like spot or husky robot which can be deployed for future planetary exploration of Martian or Lunar surfaces.

Research Associate
Howard University

OCT 2019 — MAY 2020
Washington, DC

- Made significant strides on fabrication and characterization of Surface Relief Fiber Bragg Grating sensors. The purpose of the sensor is to detect a drug called, Fentanyl.
- Utilized optical fiber assisted UV lithography and polymer replication process for fabrication and presented work in the SPIE Defense + Commercial Sensing Conference.

TEACHING EXPERIENCES & PROJECTS

Teaching Assistant
University of California Irvine

JAN 2024 — Present
Irvine, CA

- Teaching a class of two hundred students in Mechanical Systems, with a course objective of constructing a fully operational robot by the quarter's end. Offering mentorship and guidance to students in mastering C++ for programming microcontrollers, designing and analyzing feedback controllers, as well as acquiring software and hardware debugging skills.

Hand Gestured Based Robot Teleoperation
University of California Irvine

MAY 2021 — JUN 2021
Irvine, CA

- Led a team to classify simple Hand Gesture (Left, Right, Forward) by using a Deep Neural Network, and K- Nearest Neighbor Algorithm and implemented the trained model to control a simple Turtle-bot using above hand gestures.
- The handgesture data were collected using an Ultrawide Band Sensor to measure the relative distance measurement based on time-of-arrival Algorithms.

PROFESSIONAL ACTIVITIES

UCI Beall Applied Innovation: Graduate Entrepreneurial Program Organizer	2021 — 2022
MAE Graduate Student Association, UCI: Program Organizer	Winter 2022