Sweksha Jain

Location: IIT Bombay, Mumbai, India

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Areas Of Interests

Research interest lies in Swarms Robotics, Co-operative Control, Coordinated motion, Non-linear control and Reinforcement learning.

Education

Indian Intitute of Technology (IIT) Bombay — Mumbai, Maharashtra, India
Ph.D. in Systems and Control Engineering — *CGPA - 8.65*
2021 – Ongoing

Indian Intitute of Technology (NIT) Warangal — Warangal, Telangana, India
M.Tech in Process Control — *CGPA - 9.13*
2019 – 2021

Samrat Ashok Technological Institute Vidisha — Vidisha, Madhya Pradesh, India
B.E. in Electronics and Instrumentation Engineering — *CGPA - 7.99*
2013 – 2017

Publications

Conference: Sweksha Jain, Leena Vachhani. "Neighbors' Behavior-based Formation of Swarm communities with Indistinct Attributes" , IROS 2023 (under review).

Courses and Teaching Experience

Course Work — 2021-22

- Control Of Non-linear Dynamical Systems || Optimization || Intelligent feedback and Control || Embedded Control and Robotics ||Systems theory || Modelling and Identification Of Dynamical Systems || Motion Planning and Coordination Of Autonomous Vehicles

Teaching Assistant — Jan 2022 – Present

- Embedded Control and Robotics
- Intelligent feedback and Control

Preliminary Work(Ph.D.)

Forming Swarm Clusters to Known Goal Locations — *Supervisor - Dr. Leena Vacchani* — 2022
IIT Bombay

- Prior known goal locations are used to form multiple swarm clusters.
- The swarm agents effectively can avoid collision with each other.

M.Tech Thesis

CONTROL OF HUMAN BLOOD GLUCOSE-INSULIN SYSTEM — *Supervisor - Dr. Seshagiri Rao Ambati* — 2020-21
NIT Warangal

- Studied the relation between insulin level and blood glucose level in human body.
- Designed and implemented non-linear controller (NMPC, Multistage NMPC) for Human Blood Glucose-Insulin system
- Done comparative analysis of the designed controllers with the classic controllers (PID, MPC)

Bachelors' Thesis

Design Of Line Follower Hosting Robot - ROBOHOST *Supervisor - Mr. Maneesh* 2017

- Developed a RF based design, which is used for transceiving the order data and its status. It also uses a line follower to deliver the order from kitchen to the table.
- It finds its application in restaurants where the order can be directly placed by the user without the intervention of the waiters.

Projects

ALCOHOL DETECTION SYSTEM SATI Vidisha
2016

- Developed a system consists a MQ3 alcohol sensor which detects the amount of alcohol present in a person's breath.

DESIGN AND IMPLEMENTATION OF SEQUENCE DETECTOR USING VHDL NIT Warangal
2019

- Developed a sequence detector that detects if a serial input that is received matches a predetermined sequence.

APPLICATION OF MACHINE LEARNING AS A TOOL HEALTH AND FITNESS NIT Warangal
2020

- Developed a system to predict the calories burned based on the miles covered by the person so that the fitness of the person can be indexed from 0-10.

Technical Skills

Languages	:	Python, MATLAB, C, Verilog
Softwares	:	ROS, Gazebo, MATLAB, Simulink, LaTeX, Xilinx
Dev Tools	:	Visual Studio Code, Git

Workshops

- Attended a workshop on Innovations in Non-Linear Control, sponsored by IEEE.
- Attended a workshop on IoT, organized by TiH-IoT, IITB.
- Attended one-day workshop on RL conducted by Mathworks.
- Attended a workshop on Deep Learning-Theory and Applications, organized by TCS
- Completed the summer training on Embedded Systems.

Responsiblities and Achievements

- Hostel Wing prefect during bachelors
- Mess Secretary during bachelors
- NCC B Certificate holder.
- Member of Special Guard of honour in NCC Camp
- Secured the highest grades during my Masters.