Divya Tiwari

EDUCATION

UNIVERSITY OF COLORADO
MS in ECEE
Jan 2022 | Boulder, CO

NSIT, UNIVERSITY OF DELHI
Bachelor of Engineering in Instrumentation and Control
Aug 2020 | New Delhi, Delhi

CONTACT

ADDRESS
2300 Arapahoe avenue, House number 347(Newton Court), Boulder, Colorado, 80302

DOB
11 December, 1998

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LINKS

Github:// dt1729
LinkedIn:// Divya Tiwari

COURSEWORK

UNDERGRADUATE
Robotics
Control Systems(I and II)
Digital Circuits and Systems
Operating Systems
Distributed Systems
Artificial Intelligence
Advanced Process Control
(Undergraduate Researcher at Advanced Processes Control Lab)

SKILLS

PROGRAMMING
Over 3000 lines:
C • C++ • Python • MATLAB
Frameworks:
ROS • ROS2 • LabVIEW • Simulink • OpenCV • Tensorflow • Scikitlearn • CaSaDi
Simulators
GAZEBO • CARLA

EXPERIENCE

ALIVE@INDRAPRASTHA INSTITUTE OF INFORMATION AND TECHNOLOGY | Research Engineer
Oct 2020 - Nov 2021 | New Delhi, Delhi

- Ported legacy **ROS**(Robotic Operating System) architecture to **CARLA** simulator for testing, evaluation and verification of planning algorithms.
- Improved waypoints based Navigation stack using **ALGLIB** for curve fitting.
- Designed RRT*(Rapidly Exploring Random Trees) based local Motion planning framework using **OMPL**(Open Motion Planning Library) for the vehicle.
- Used bicycle model to design and bench-mark Pure pursuit and Stanley controllers for vehicle in CARLA.
- Developed an Adaptive Belief Tree based planner for maneuver selection in the presence of dynamic obstacles.

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH | Research Intern
Jan 2020 – Jun 2020 | Bhopal, MP

- Designed SDRE, MPC, PID for trajectory tracking control system of an Underactuated Marine Vessel using **MATLAB** and **CaSaDI**.
- Benchmarked their performance in presence of disturbances in the environment.

INDIAN INSTITUTE OF SCIENCE | Research Intern
May 2019 – Aug 2019 | Bengaluru, Karnataka

- Deployed **ORB-SLAM2** and potential based path planning for autonomous navigation of mobile robot using ROS framework.
- Used **RaspiCam** and **MPU-6050** for AHRS framework with **TI-TIVA-C** for low level control of mobile robot platform.

LASER SCIENCE AND TECHNOLOGY CENTER, DRDO | Project Intern
Jun 2018 – Jul 2018 | New Delhi, Delhi

- Designed voice recognition on arduino using cross-correlation. Signal conditioning circuit using op amps was developed.

YASKAWA INDIA PVT. LTD. | Project Intern
Jun 2017 – Jul 2017 | Gurugram, Haryana

- Study of Industrial welding, pick and place robots their design,handling and modifications.
- Design of an robotic arm and assembly on solidworks along with market and competitor analysis was carried out.

PROJECTS

TEAM KALPANA CANSAT Oct 2018 – May 2019
Developed PID control for camera stabilisation on payload. Worked on AHRS algorithm to find payload orientation and wrote device drivers for sensor subsystem. Stood 30 among 100+ teams worldwide that participated in CANSAT(NASA).

HUMAN POSE CORRECTION RECOMMENDATION Aug 2020
The project utilised segmentation of webcam feed for human identification from background and pose finding. Tested Deeplab v3(DL method) and Chan Vese algorithms for segmentation, while considering performance and speed of segmentation as metrics. Using these it suggested pose correction of the person working on their PC.

DC MOTOR SPEED CONTROL Jan 2018 – May 2018
Worked on transfer function estimation using system identification toolbox and developed controllers to monitor DC motor's speed.

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GAZEBO • CARLA

ELECTROCARDIOGRAM USING DIGITAL AND ANALOG FILTERS

Jan 2017 – Jun 2017

RC filter and Instrumentation amplifier circuits were developed to comprehend the waveform of Sinus Rhythm(SR). Using Numpy library the data acquired through sound card of computer was studied using Fast Fourier Transform. Signal Conditioning circuit developed enabled the setup to connect to any computer with a headphone jack.

PUBLICATIONS

ACCEPTED

Amit Sangwan, Abhinav Gupta, **Divya Tiwari**, Vineet Kumar, KPS Rana,"Comparative Study of Optimization Techniques for Tuning of PI Gains for Greenhouse Climate Control", IEEE International Conference on Computing Power and Communication Technologies 2019

Abhinav Gupta, **Divya Tiwari**, Vineet Kumar, KPS Rana,Seyedali Mirjalili "A Chaos Infused Moth Flame Optimizer", Arabian Journal for Science and Engineering, Springer

INTERESTS

AUTONOMOUS VEHICLES Study of recent developments in maneuver planning for autonomous vehicles and Unmanned Mobile Robotic systems.

SWARM ROBOTICS Research and Development in the field of swarm and multi-agent robotics for application in industrial and defence environments.

PERSONAL INTERESTS Chess, Football, Formula 1