# SIDHARTH TALIA

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## EDUCATION

**University of Washington Seattle** 2022 - 2027
– *Paul G. Allen School of Computer Science* *WA, USA*
Ph.D. in Computer and Information Science Cumulative GPA: 3.89

**Guru Gobind Singh Indraprastha University Delhi** 2016 - 2020
— *Bharati Vidyapeeth College of Engineering Delhi* *Delhi, IND*
Bachelor of Technology in Electrical and Electronics Engineering Cumulative GPA: 8.81/10.0

## EXPERIENCE

**University of Washington, Seattle** Sep 2022 - Present
*Graduate RA/TA, Advisor: Dr. Siddhartha S. Srinivasa* *Seattle, WA, USA*

- RA, focusing on field robotics. Part of the RACER team
- TA for CSE478: Autonomous robotics

**Indian Institute of Technology(I.I.T.)-Delhi** Jan 2022 - June 2022
*DLive project assistant, Advisor: Dr. Sunil Jha* *Delhi, IND*

- Created a system for improving lane center estimation on adverse Indian road conditions that could also be used for automatic generation of lane marker labels.

**University of Washington, Seattle** April 2020 - 2022
*PRL remote intern, Advisor: Dr. Siddhartha S. Srinivasa* *Seattle(Remote), WA, US*

- Project lead for PuSHR (IROS 2023): A multi-robot system for non-prehensile rearrangement
- Improving lane tracking of an imitation learning agent by predicting trajectories instead of single timestep actions

**Consultant/Freelance software engineer** October 2020 - December 2021
*Self-employed* *Delhi, IND*

- Providing consultancy/software engineering services to start-ups in the automation sector

**Indian Institute of Technology(I.I.T.)-Delhi** June 2019 - July 2020
*DLive project intern, Advisor: Dr.Sunil Jha* *Delhi, IND*

- State estimation lead for GPS-INS Odometry, deployed on a full-scale vehicle

**Botlab Dynamics** February 2019 - April 2019
*RnD intern* *Delhi, IND*

- Created and deployed a visual odometry system for high altitude navigation with quadcopters with $< 3\%$ drift over dessert-like terrain

**Indian Institute of Technology(I.I.T.)-Delhi** June 2018 - August 2018
*Celestini program India 2018 project intern, Advisor: Dr.Aakanksha Chowdhery* *Delhi, IND*

- Advanced Driver Assistance System (ADAS) coupled with V2V communication

**Omnipresent RobotTech** June 2016 - October 2017
*Intern* *Delhi, IND*

- Created a quadcopter flight controller to learn about control systems, state estimation, hardware design, and basics of computer vision

## PUBLICATIONS

- Sidharth Talia, Matt Schmittle, Alexander Lambert, Alexander Spitzer, Christoforos Mavrogiannis, Siddhartha S. Srinivasa. "HOUND: An Open-Source, Low-cost Research Platform for High-speed Off-road Underactuated Nonholonomic Driving". (In submission, submitted to RSS'24. Paper, Website)

- Sidharth Talia*, Arnav Thareja*, Christoforos Mavrogiannis, Matt Schmittle, and Siddhartha S. Srinivasa. "PuSHR: A Multirobot System for Nonprehensile Rearrangement." (IROS 2023, Paper, Github)

- Sidharth Talia, "A multimodal approach for localization of Ackerman steering micro ground vehicles in bad GPS reception environments." In 2019 3rd International Conference on Recent Developments in Control, Automation & Power Engineering (RDCAPE), pp. 64-69. IEEE, 2019. (Paper, Github)

## PROJECTS

- Low-cost research platform for researching aggressive offroad autonomy (HOUND)
- Multi-robot non-prehensile rearrangement system (PuSHR)
- Integration of MuSHR into a Unity-based simulator for reinforcement learning
- Jerk optimal one-shot Bezier curve based 3D Trajectory tracking for fixed wing systems using jerk optimal Bezier curves video 1, video 2(code not publicly available).
- System for automatic generation of lane marker labels using pre-trained lane detection networks and road-network data (video)
- Leveraging Bezier curves for deep learning based autonomous navigation
- Low-cost inertial navigation system.
- (ADAS) coupled with V2V communication
- Low cost mini-self-driving car with robust state estimation and control
- Multi-rotor controller for orientation and altitude control

## SKILLSET

- Languages: Python, C++
- Frameworks: Pytorch, OpenCV, PyCUDA, ROS.
- Embedded systems: Familiar with Ardupilot and Px4 frameworks.
- CAD: Autodesk Fusion 360.