

Mike Degany

Computer Science Ph.D. Candidate

✉ degany.mike@gmail.com

☎ +1 (214) 876 7206

in @MikeDegany

🐙 @MikeDegany

Ph.D. candidate in Computer Science with a background in Mechatronics and Robotics, and hands-on experience in real-platform autonomous vehicles. Proficient in programming, adept at designing and implementing Mapping, Motion Planning and Control solutions for both automated robots and vehicles. Additionally, possess advanced knowledge and familiarity with perception techniques, particularly in the realm of 3D object detection and visual SLAM. Detail-oriented, multitasking individual excelling in problem-solving under pressure, with a strong motivation to expand expertise into new areas.



SKILLS

Language: C++, Python, C, Matlab, and Assembly (AVR).

Tools & Software: ROS, ROS2, Autoware, Gazebo, CARLA, Linux, and Git.

Technical Skills: Trajectory generation techniques, Localization, Navigation, Optimization, Control systems, Mapping algorithms, Perception models, Wireless Networks.



INTERESTS

- Passionate about all aspects of autonomous vehicles, encompassing Perception, Motion planning, Control, Software Development, Simulation, Hardware, Machine Learning, and Communication Protocols
- Perception: Enthusiastically interested in perception technologies, encompassing Sensor Fusion, Object Detection, Feature Extraction, LiDAR, Camera, Radar, and other exteroceptive sensors. Intrigued by Computer Vision techniques using Machine Learning, Perception models, and exploring tools such as OpenCV, TensorFlow, PyTorch, etc.



EXPERIENCE

- Graduate Researcher – Vehicle Autonomy and Intelligence Lab, University of North Texas (2021-2023)
Multi-Robot Mapping and Navigation: A Holistic Approach for Collaborative Exploration
 - Coordinated multiple Mobile robots for Collaborative Mapping and Navigation
 - Established wireless connection between robots and central PC
 - Utilized ROS2 and DDS (Data Distribution Service) for efficient communication
 - Mitigated interference and minimized traffic by employing distinct domain IDs and namespaces
 - Implemented Domain Bridge to transfer robot data to the central PC, enabling offline processing for Graphoptimization on Central node
 - Tools: C++, ROS2, Linux, Git, SLAM_toolbox, Nav2 Stack, DDS, Wireshark**Motion Control for real-platform AutonomouStuff retrofitted Vehicle**
 - built Speed and Steering Control (SSC) package for PACMod driven cars
 - Worked on Autoware open-source software for simulation and real implementations on AV
 - Worked with Xsens MTi-7 GNSS/INS, Velodyne VLP16 Lidars
 - Implemented a multi-level Schmitt switching PID Controller on a GEM e4 shuttle retrofitted by AutonomouStuff
 - Tools: Autoware, ROS, C++, PID, PACMod
- Researcher – Mobile Robots Lab, Amirkabir University of Technology (2018-2019)
Motion Planning for Autonomous vehicles in Dynamic Environments
 - Motion Planning for Autonomous Vehicles or car-like mobile robots using a hierarchical approach (Global and Local)
 - Used various planning techniques to generate a trajectory, with a special focus on Timed Elastic Bands
 - Novel approach in Trajectory Planning in dynamic environments
 - Enhanced Moving Obstacle Prediction through Kalman Filtering and Advanced Methodologies
 - Simulated in Robot Operating System (ROS)
 - Tools: Optimization, g2o, C++, ROS, Python, Kalman Filtering, A*, Teb_planner, Vehicle Kinodynamics



EDUCATION

Computer Science and Engineering / Doctor of Philosophy

(2021 – present)

University of North Texas – GPA: 4.0

Mechatronics / Master of Science

(2016 – 2019)

AmirKabir University of Technology – GPA: 3.92