Aaron Angert

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EDUCATION

TEXAS A&M UNIVERSITY
MS – COMPUTER SCIENCE & ENGINEERING
Autonomous vehicles and motion planning
3.8/4.0 GPA

UNIVERSITY OF TEXAS AT AUSTIN
BS – COMPUTER SCIENCE

TEACHING EXPERIENCE

GRADUATE ASSISTANT LECTURER 2022
CSCE 482: Senior design capstone,
30 students, oversaw eight graduate team's autonomous vehicle projects

GRADUATE TEACHING ASSISTANT 2017–2021
CSCE 482: Senior design capstone
CSCE 452: Intro to mobile robotics
CSCE 314: Programming languages

SKILLS

LANGUAGES:
Python, C++, makefiles, Java, C#, Javascript, Visual Basic(Excel), Matlab, Simulink, Haskell
PROJECT MANAGEMENT FOR MOBILITY ENGINEERS:
Feasibility assessment, FMEA, Stakeholder grid monitoring, Risk management
SPECIALIZED PACKAGES:
SUMO, Unreal, Unity, docker, multithreading
ROBOTICS/AI:
Machine learning, Computer vision, SIFT, reinforcement learning, CNNs, YOLO (traffic light/sign detection), Motion planning (RRT, PRM, A*)
HARDWARE:
IMU, GPS, Lidar processing, Camera, CANBUS, Embedded systems, ESP8266

COURSEWORK

Analysis of algorithms, Machine learning, Convex optimization, Intelligent systems and robotics, Linear models, Linear multivariable systems

PUBLICATIONS

Proprioceptive Localization Assisted by Magnetoreception: IEEE Robotics and Automation Letters

Neural information retrieval: at the end of the early years. Information Retrieval Journal, 21, 111-182.

PROFESSIONAL EXPERIENCE

IBM – SOFTWARE ENGINEER, AUSTIN TX **2014-2017**
Deployed and maintained Openstack cloud IaaS platform. Developed and managed internal monitoring tools for deployed cloud
TECHNICAL SKILLS: Flask, Ansible, Couchdb, DevOps
PM SKILLS: Agile development, Scrum, Sprints, Jira, Git

COMPETITIONS

SAE AUTODRIVE CHALLENGE™ I/II **2019– 2022**
Team captain for the Autodrive challenge autonomous vehicle competition, Major focus on program management deliverables, with technical focus on local motion planning, behavior state machines, HD map integration, systems engineering and vehicle simulations.
TECHNICAL SKILLS: Matlab, Simulink, Unreal, ROS/ROStest, ArcGIS, PostGresSQL, Python, C++, RQT-Gui, linux, Github
PM SKILLS: Gantt charts, Pert analysis, Critical path analysis, WBS, CDR.

INDY AUTONOMOUS CHALLENGE **2020– 2021**
Developed software for motion planning for a simulated race vehicle on the Indianapolis motor speedway within the Ansys SCADE software suite, using a Python and DDS communication stack for networked races.
SKILLS: Ansys SCADE, ROS 2, RTI Connext DDS, Simulated lidar, Camera, Radar

AWARDS

SAE AUTODRIVE CHALLENGE™ I/II **2019-2022**
1st place Overall Dynamic Challenge I year 4
1st place Highway Challenge II year 1
2nd place Simulation Challenge II year 1
2nd place Overall & Dynamic II year 1
3rd place Simulation Challenge I year 3
INDY AUTONOMOUS CHALLENGE **2020-2021**
3rd place final simulation race

MAJOR PROJECTS

LOCAL MOTION PLANNING **2020-2021**
Direct management and responsibility over development of the local motion planner for our chevy bolt autonomous vehicle as apart of the Autodrive Challenge™ I year 4. Behaviors included stopping, crosswalk navigation with pedestrians, turns and turn signals, rail road crossings, dynamic obstacle avoidance, communication between the global motion planner and vehicle controller. A rqt-gui was created to translate and test behaviors mapped from Mcity to the Rellis testing facility.

AUTONOMOUS VEHICLE SIMULATION **2021 - 2022**
Leadership and management over simulation of our chevy bolt within the Matlab, Simulink, and Unreal Engine environments. Virtual outputs included Lidar, camera, IMU, which were used to test vehicle modules directly through ROS. For the Year 1 Autodrive challenge II, I lead a group of undergrad capstone students to complete simulation challenges within Simulink including collision avoidance, traffic light interaction, stopping, emergency braking, and waypoint following with Software in the loop testing with equivalent results. Our team placed 2nd overall.