

# Aaron Angert

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## EDUCATION

TEXAS A&M UNIVERSITY Aug 17 – Nov 22

### MS – COMPUTER SCIENCE & ENGINEERING

Autonomous vehicles and motion planning  
College Station, TX 3.77/4.0 GPA

UNIVERSITY OF TEXAS Aug 12 – May 14  
Austin, TX

### BS – COMPUTER SCIENCE

## TEACHING EXPERIENCE

### GRADUATE ASSISTANT LECTURER SPRING 22

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

### GRADUATE TEACHING ASSISTANT FALL 17–FALL 21

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

MAY '14-JUNE '17

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,  
PostgreSQL, 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 Connex 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 such as collision  
avoidance, traffic light interaction and stopping, emergency braking, and  
waypoint following with Software in the loop testing with equivalent results.  
Our team ended up placing 2nd overall.