

# Dr. Wyatt McAllister

wyattsmcall1@me.com | 512.638.3717 | <https://wyattsmcall1.github.io>

## RESEARCH INTEREST

I'm excited to chat with teams working on intelligent consumer infrastructure. I'm passionate about autonomous systems, robotics, and data science.

## EDUCATION

### UNIVERSITY OF ILLINOIS | URBANA-CHAMPAIGN, IL

**PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING | AUGUST 2018 - MAY 2020**

Advised by Dr. Girish Chowdhary

Department of Electrical and Computer Engineering (ECE)

Cum. GPA: 4.0 / 4.0

**MS IN ELECTRICAL AND COMPUTER ENGINEERING | AUGUST 2016 - MAY 2018**

Advised by Dr. Girish Chowdhary

Department of Electrical and Computer Engineering (ECE)

Cum. GPA: 4.0 / 4.0

**BS IN ELECTRICAL AND COMPUTER ENGINEERING, HIGHEST HONORS | AUGUST 2014 - MAY 2016**

Department of Electrical and Computer Engineering (ECE)

Cum. GPA: 3.92 / 4.0

## SKILLS

### SOFTWARE

C++, C, Java, MatLab, Python, LATEX, Mathematica, Photoshop, HTML, CSS

### HARDWARE

ROS, Open CV, PHP, Eagle CAD PCB

### LANGUAGE

Spanish - Professional

## PROFESSIONAL EXPERIENCE

### HRL LABORATORIES, LLC | SCIENTIST IV | MALIBU, CA | MARCH 2021 – PRESENT

- Researching collaborative robotic manufacturing in collaboration with General Motors, including robotic control, signal processing for audio and video, and autonomous decision making
- Created simulation for autonomous mobile robotic manipulation for maintenance of undersea structures in collaboration with Boeing, including control, path planning, and autonomous decision making
- Designed autonomous robotic wire insertion solution for aircraft manufacturing in collaboration with Boeing, including computer vision, robotic control, and autonomous decision making
- Worked on autonomous driving systems in collaboration with General Motors, including autonomous decision making with behavior trees and assured autonomy for collision avoidance

## RESEARCH

### DAS LAB | POSTDOCTORAL RESEARCHER | URBANA-CHAMPAIGN, IL | JUNE 2020 – FEBRUARY 2021

- Helped create a data validation pipeline using DeepSORT and OpenCV to perform detection and tracking of weeds in real agricultural fields to create spatially encoded density models

### DAS LAB | GRADUATE RESEARCHER | URBANA-CHAMPAIGN, IL | MAY 2017 – MAY 2020

- Designed a multi-agent planning algorithm for robotic weed killing, with an associated simulation framework including a realistic weed growth model
- Incorporated a real-time weed growth information processing and prediction strategy using Evolving Gaussian Processes (E-GP) model and a Kalman filter, enabling proactive planning

## AWARDS

2018	Shun Lien Chuang Memorial Award in ECE	Top 1/503
2016	Highest Honors	GPA >3.8/4.0
2016	John Bardeen Award in ECE	Top 1/2500
2014-2016	Dean's List	Top 20th Percentile

## HONOR SOCIETIES

2016	Tau Beta Pi Engineering Honor Society	Top 12th Percentile
2015	Eta Kappa Nu IEEE Honor Society	Top 25th Percentile

## TEACHING

### **UNIVERSITY OF ILLINOIS | URBANA-CHAMPAIGN, IL | AUGUST 2016 - MAY 2018**

- Spring 2018: Fields and Waves I (ECE329) with Dr. Lynford Goddard
- Fall 2017: Principles of Experimental Research (ECE446) with Dr. Lynford Goddard
- Fall 2016: Digital Signal Processing (ECE310) with Drs. Yoram Bresler and Stephen Levinson

## PUBLICATIONS

- [1] W. McAllister, D. Osipychev, G. Chowdhary, and A. Davis. Multi-agent planning for coordinated robotic weed killing. In *Intelligent Robots and Systems (IROS), 2018 IEEE/RSJ International Conference on*. IEEE, 2018.
- [2] W. McAllister, D. Osipychev, G. Chowdhary, and A. Davis. Agbots: Weeding a field with a team of autonomous robots. *Computers and Electronics in Agriculture*, 163:104827, 2019.
- [3] W. McAllister, J. Whitman, A. Axelrod, J. Varghese, A. Davis, and G. Chowdhary. Agbots 2.0: Weeding denser fields with fewer robots. *Robotics: Science and Systems Foundation*, 2020.
- [4] W. McAllister, J. Whitman, J. Varghese, A. Davis, and G. Chowdhary. Agbots 3.0: Adaptive weed growth prediction for mechanical weeding agbots. *IEEE Transactions on Robotics*, pages 1–13, 2021.