

Dr. Wyatt McAllister

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EDUCATION

UNIVERSITY OF ILLINOIS

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING

May 2020 | Urbana-Champaign, IL
Conc. in Distributed Autonomous System
Cur. Cum. GPA: 4.0 / 4.0

MS IN ELECTRICAL AND COMPUTER ENGINEERING

May 2018 | Urbana-Champaign, IL
Conc. in Control and Data Science
Cum. GPA: 4.0 / 4.0

BS IN ELECTRICAL AND COMPUTER ENGINEERING

May 2016 | Urbana-Champaign, IL
Conc. in Control Systems
Cum. GPA: 3.92 / 4.0

LINKS

<https://wyattsmcall1.github.io>

AWARDS

UNIVERSITY OF ILLINOIS

Urbana-Champaign, IL
2018 | Shun Lien Chuang Award (1/503)
2016 | Highest Honors (GPA >3.8/4.0)
2016 | John Bardeen Award (1/2500)
2014-2016 | Dean's List (Top 20%)

SOCIETIES

UNIVERSITY OF ILLINOIS

Urbana-Champaign, IL
2016 | Tau Beta Pi (Top 12%)
2015 | Eta Kappa Nu (Top 25%)

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 – MAY 2024

- Researched collaborative robotic manufacturing for General Motors, including robotic control, signal processing for audio and video, and autonomous decision making
- Created simulation for autonomous mobile robotic maintenance of undersea structures for Boeing, including control, path planning, and autonomous decision making
- Designed autonomous robotic wire insertion solution for aircraft manufacturing for Boeing, including computer vision, robotic control, and autonomous decision making
- Worked on autonomous driving systems for 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

PUBLICATIONS

- [1] W. McAllister, D. Osipychiev, 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. Osipychiev, 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.