

Max DeSantis

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Education

Oklahoma State University

B.S. WITH HONORS ELECTRICAL ENGINEERING, B.S. WITH HONORS COMPUTER ENGINEERING

Minors Spanish and Mathematics

Stillwater, OK

Expected May 2023

GPA: 4.0

Experience

Unmanned Systems Research Institute

UNDERGRADUATE RESEARCH ASSISTANT | DR. JAMEY JACOBS

- Develop high fidelity aerodynamic simulation plugins for Ignition Gazebo
- Implement physically accurate vehicle models for use in heterogeneous swarm simulations

Stillwater, OK

May 2022 - Present

Controls, Robotics and Automation Laboratory

UNDERGRADUATE RESEARCH ASSISTANT | DR. HE BAI

- Implemented 3D spatial and temporal wind simulation support into Microsoft AirSim
- Developed wind-aware piloting interfaces for quadrotors in QGroundControl
- Worked with Optitrack Motion Capture hardware to measure wind effects on quadcopter
- Designed and built a low-level PID control system using C++ and ROS on embedded STM32 board
- Conference paper presented in 2022 AIAA Aviation Forum

Stillwater, OK

Oct 2019 - Present

Molex

ELECTRICAL AND SOFTWARE ENGINEERING CO-OP

- Built modular test automation platform using C# to reduce repetitive software testing
- Created project-independent data display and real-time graphing library to accelerate production of test and analysis GUIs
- Performed worst case circuit analysis on automotive USB power delivery board
- Completed simulation and hardware EMC testing to validate new board's compliance to industry and customer standards

Lisle, IL

Jan 2021 - Aug 2021

Medical Oxygen Tank Time Estimator

ELECTRICAL AND PROGRAMMING LEAD

- Invented prototype device with web interface to estimate oxygen tank depletion for COPD patients
- Pursued patent on custom modular adaptor and attachment device

Edmond, OK

Aug 2018 - Jun 2019

Extracurricular Activities

OSU Mercury Robotics

PRESIDENT, VICE PRESIDENT

- Mentored autonomous vehicle design on IGVC AutoNav competition
- Led software development on algae-tracking vehicle, developed PCBA for power system monitoring
- Promoted skill growth among team by hosting relevant technical training and on-boarding sessions
- Seized opportunities for club expansion into new areas and activities

Stillwater, OK

Aug 2021 - Present

Vision-Based HMI for Mobile Robot

UNDERGRADUATE RESEARCH SCHOLAR

- Designed prototype point-and-click robot control interface for Turtlebot3

Stillwater, OK

Jul 2021 - Jun 2022

NASA Micro-g NExT SAVER Challenge

ELECTRICAL AND AUTONOMOUS SYSTEMS TEAM

- Prototyped autonomous search and rescue boat to deliver supplies to stranded astronauts
- Assisted in design/build of custom radio direction finding circuitry and software
- Used ROS to establish low-level motor control, safety constraints and remote operation
- Planned and constructed waterproof power distribution system

Stillwater, OK

Oct 2019 - Jun 2021

Skills

Programming C++, C, Python, C#, OpenCV, Matlab, Java, VBA

General UNIX, Git, ROS, LaTeX, Gazebo, Unreal Engine, SPICE, PCB design and layout

Honors & Awards

2021	OSU Undergraduate Research Scholar	2019	Blair and Mary Stone Scholar
2020	Best Poster, OSU International Mechatronics Conference	2019	5th Place, National SkillsUSA Engineering Design
2020	Koch Discovery Scholar	2019	Oklahoma State Regents Scholar
2020	Leo J and Josie Mosely Peters Scholar	2019	Project Lead the Way STEM Scholar