Thomas Scherlis

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EDUCATION

CARNEGIE MELLON UNIVERSITY
• Electrical and Computer Engineering
• Robotics
Expected May 2022 | Pittsburgh, PA
GPA: 3.86

LINKS

Portfolio: http://tomscherlis.com
LinkedIn:// Tom Scherlis
Github:// Toms42

TEACHING ASSISTANT

• Robot Kinematics and Dynamics: Fall 2021
• Structure and Design of Digital Systems: Fall 2018
• Principles of Imperative Computation: Summer 2018

COURSEWORK

• Adaptive Control and Reinforcement Learning (PhD level)
• Planning Techniques for Robotics
• Robotic Systems Engineering
• Advanced Mobile Robot Development
• Computer Vision
• Robot Kinematics and Dynamics
• Control Systems
• Embedded System Design
• Artificial Intelligence
• Computer Graphics
• Signals and Systems

SKILLS

CONCEPTS
Control systems (PID, LQR, MPC) • Trajectory planning • Embedded • Networks • Simulation • Mechatronics • UI Design

PROGRAMMING
Python • C++ • C • Matlab • React-js

COMPUTING HARDWARE
PCB design and layout • TI and Atmel 32 bit Microcontrollers • Intel FGPA

TOOLS AND FRAMEWORKS
ROS • Qt • FreeRTOS • Altium • Solidworks • Linux/Unix • Git • SVN • Agile • Docker • React

EXPERIENCE

ZIPLINE INTERNATIONAL | Robotics Systems Integration Intern
August 2020 - August 2021

- Led software design/development for prototype multivehicle system used by at least 15 engineers.
- Created software using ROS/Python/C++ for communications, guidance/control, mission management, health monitoring, time synchronization, operator dashboard (React-JS), RTK GPS.
- Helped run a hiring pipeline and onboarded 2 employees on prototype software stack.

APPLE INC | Hardware Test - Software Intern (Remote)
Summer 2020

- Led development of internal tool used by at least 15 engineers to aid in test station bring-up and documentation.
- Designed systems for deployment, maintenance, and integrated with other pieces of the Apple software ecosystem.

ZIPLINE INTERNATIONAL | Embedded Software Intern
Summer 2019

- Developed embedded software for the world's largest autonomous drone delivery network.
- Designed a system to allow smart CAN-connected battery docking ports to safely share chargers, increasing charging and logging throughput.

ACTIVITIES:

CMU SUBMARINE TEAM: TARTAN AUV | Co-Founder and President

- Led development of two Autonomous Underwater Vehicles (AUVs) to compete annually in the international RoboSub competition.
- Currently mentoring a group of 10 new members as they take over the design/development process.
- Led software stack developed with ROS and Gazebo for python and C++, including guidance, navigation, controls, and perception.
- Led design of electronics and sensor system, including an NVIDIA Xavier, Doppler Velocity Log, Inertial Measurement Unit, cameras, and sonar.
- Raised and manage $40k team budget for 2020 - placed fifth overall.

ROBOMECHANICS LAB | 2020

ROBOTICS CLUB | 2020 General Officer, 2021 Social Chair

CARNEGIE MELLON RACING (CMR) | 2017-2019 Embedded HW

PROJECTS

MODEL BASED CONTROL FOR AGILE DRONE FLIGHT | tomscherlis.com/dronempc

- Implemented optimal minimium snap trajectory generation for drone racing gates.
- Designed real-time Model Predictive Controller (MPC) with differentially flat quadcopter model.

FULL-BODY VR FLIGHT SIMULATOR | tomscherlis.com/quidditch

- Created simulator with procedural terrain generation using Unity 3D.
- Winner of Faculty Choice and Builder's Choice awards at the 2018 CMU Build18 Hackathon.

INTERESTS: Robotics • Speculative Design & Art • Planning/Controls