Logan Schexnaydre

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Education

Michigan Technological University — Houghton, MI
PhD, Computer and Electrical Engineering (In-progress) — *Jan 2022 — Present*
- Cumulative GPA: 4.0/4.0
- Relevant Coursework: Graduate Introduction to Robotics, Probability and Stochastic Processes, Detection and Estimation Theory, Linear Systems

Michigan Technological University — Houghton, MI
Bachelor of Science, Computer and Electrical Engineering — *Aug 2017 — Dec 2021*
- Cumulative GPA: 3.86/4.0
- Relevant Coursework: Digital Logic, Circuits II, Electronics, HW/SW System Integration, Control Systems

Research and Educational Experience

Graduate Research Assistant — May 2022 — Present
NEXTCAR II Research Program, Michigan Technological University — *Houghton, MI*
- Implemented C++ lidar data processing code for reducing energy consumption by 20% in autonomous vehicle following.
- Developed a lidar-based road surface profiling system to provide a lookahead signal to a control system for increasing ride safety and comfort.

Graduate Student Mentor — May 2022 — May 2024
AutoDrive II Competition, Michigan Technological University — *Houghton, MI*
- Mentored a simulation-based subteam (4-7 undergraduate students) tasked with testing and verifying the functionality of perception, path planning, and control systems in simulation using MathWorks tools, culminating in three presentations to industry judges.
- Integrated autonomous vehicle subsystem components using ROS, coordinate transforms, and path planning tools used in a custom autonomous vehicle stack during physical competition events.

Undergraduate Researcher — Jun 2018 — Aug 2018
Oakland University, Department of Electrical and Computer Engineering — *Auburn Hills, MI*
- Designed and completed an experiment to compare the ability of IMU and flex sensors to measure knee flexion.
- Collected and processed sensor data in real-time through Arduino and MATLAB.

Engineering Experience

Component and Hardware Systems Engineering Intern — August 2020 — August 2021
National Aeronautics and Space Administration, Goddard Space Flight Center — *Greenbelt, MD*
- Implemented unit tests for a small satellite GNSS component.
- Organized the wire harness for the EGSE of the Roman Space Telescope (RST) deployment, propulsion, and GSE subsystems.
- Automated safe-to-mate testing of the RST deployable, propulsion, and GSE wire harness connectors.

Software Engineering Intern — May 2020 — August 2020
Space Dynamics Laboratory — *Logan, UT*
- Developed and implemented hooks for testing scoring algorithms for optimizing task allocations of small satellites within a MATLAB-based in-house satellite simulation software.

Guidance, Navigation, and Controls Intern — May 2019 — August 2019
National Aeronautics and Space Administration, Wallops Flight Facility — *Chincoteague, VA*
- Analyzed rocket/spacecraft trajectories for system testing scenarios through Python scripting on Linux and Windows.
- Wrote and completed subsystem and unit-level tests for avionics components.
- Performed component testing and wire-harness troubleshooting for balloon science missions.

Payload Team Lead - Auris Mission — January 2018 — December 2021
Michigan Tech Aerospace Enterprise — *Houghton, MI*

- Led an independent team of 6-10 students to develop hardware and software components for a spacecraft payload.
- Developed and documented embedded software (Python, C/C++) from scratch that executes payload operations.
- Tested Software Defined Radios and GNSS boards using Linux and scripting software.

Publications

A. Poovalappil A. Robare, **L. Schexnaydre**, P. Santhosh, M. Bahramgiri, J. P. Bos, B. Chen, J. Naber, D. Robinette, "On-Road Investigation of Energy Saving Opportunity for Autonomous Light-Duty Vehicles through Automated Vehicle-Following in Safe Distance Scenarios," presented at the WCX SAE World Congress Experience, SAE International, Apr. 2025. doi: 10.4271/2025-01-8029.

M. H. Schmelzle, **L. Schexnaydre**, N. Spike, D. Robinette, and J. Bos, "Facilitating Project-Based Learning Through Application of Established Pedagogical Methods in the SAE AutoDrive Challenge Student Design Competition," presented at the WCX SAE World Congress Experience, SAE International, Apr. 2024. doi: 10.4271/2024-01-2075.

L. Schexnaydre, A. Poovalappil, M. Schmelzle, D. Robinette, and J. P. Bos, "Using automated vehicle positioning to improve efficiency in vehicle platooning," in Autonomous Systems: Sensors, Processing, and Security for Ground, Air, Sea, and Space Vehicles and Infrastructure 2023, SPIE, Jun. 2023, pp. 202–211. doi: 10.1117/12.2664430.

Presentations

L. Schexnaydre, "Efficient Perception Algorithms Can Save Energy for Autonomous Vehicles," presented at the Graduate Research Colloquium, Michigan Technological University, Mar. 26, 2024.

L. Schexnaydre and A. Burr, "Tracking Lower Limb Movement Using an Integrated Sensor Approach," presented at the Mid-Michigan Symposium for Undergraduate Research Experiences, Michigan State University, Jul. 24, 2018.

Skills

- **Programming Languages**: C/C++, Python, MATLAB
- **Technologies**: Git, Linux, Bitbucket, Github, LaTeX, ROS, Point Cloud Library