Scott Mayberry

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Research Interests Distributed Sensor Fusion, Open-Source Aquatic Robotics, Underwater Communication

Education

Georgia Institute of Technology, Atlanta, GA, USA
Ph.D., Robotics, Expected Jan 2025
Lab: Georgia Tech Systems Research Laboratory, GTSR
Advisor: Fumin Zhang, Ph.D

Massachusetts Institute of Technology, Cambridge, MA, USA
B.S., Department of Mechanical Engineering, June 2018

Research Experience

Graduate Research Assistant — Sep 2020 - Present
Georgia Tech Systems Research Laboratory,
Georgia Institute of Technology
Supervisor: Fumin Zhang, Ph.D.

Robotics Research Engineer — Sep 2018 - Sep 2020
Advanced Robotics and Analytics,
Ford Motor Company
Supervisor: Raj Sohmshetty

Undergraduate Research Assistant — Sep 2016 - May 2017
Global Engineering and Research Lab,
Massachusetts Institute of Technology
Supervisor: Amos Winter, Ph.D.

Fellowship **National Science Foundation Graduate Research Fellow (NSF GRFP)**

Publications

1. Zhang, Z., **Mayberry, S.**, Wu, W., & Zhang, F. (2023). Distributed cooperative Kalman filter constrained by advection–diffusion equation for mobile sensor networks. Frontiers in Robotics and AI, 10.
2. Zhang, Z., **Mayberry, S.**, Wu, W., & Zhang, F. (2023). Distributed Cooperative Kalman Filter Constrained by Discretized Poisson Equation for Mobile Sensor Networks. 2023 American Control Conference (ACC), 1365–1370.
3. **Mayberry, S.**, Wang, J., Tao, Q., Zhang, F., Song, A., Hong, X., Dong, S., Webb, C., Dugaev, D., & Peng, Z. (2021). First Step Towards μNet: Open-Access Aquatic Testbeds and Robotic Ecosystem. The 15th International Conference on Underwater Networks & Systems, 1–8.
4. Cai, J., **Mayberry, S.**, & Zhang, F. (2022). First Step Towards Low-Cost, Open-Source Optical Modem for Underwater Communication with Experimental Results. The 16th International Conference on Underwater Networks & Systems, 1–2.
5. **Mayberry, S.**, Cai, J., & Zhang, F. (2022). BlueBuzz, an Open-Source Acoustic Modem. OCEANS 2022, Hampton Roads, 1–7.
6. Ramachandran, B., **Mayberry, S.**, & Zhang, F. (2023). Acoustic Localization of Underwater Robots: A Time of Arrival-Based Particle Filter Approach Using Asynchronous Beacon Pinging. 2023 8th International Conference on Automation, Control and Robotics Engineering (CACRE), 294–299.

Patents

1. **S. Mayberry**, R. Sohmshetty, & S. Hoff, "Decentralized Location Determination Systems and Methods," U.S. Patent 11,417,015 B2, Aug. 16, 2022
2. R. Roychowdhury, D. J. Berels, M. Y. Ghannam, & **S. Mayberry**, "System and Method for Circuit Testing Using Remote Cooperative Devices," U.S. Patent 11,592,468 B2, Feb. 28, 2023.
3. Y. Chen, R. Somshekar, J. Lu, & **S. Mayberry**, "Smartphone and Battery Integration Module for an Electric Scooter," U.S. Patent 11,812,151 B2, Nov. 7, 2023.
4. **S. Mayberry**, D. Berels, M. Y. Ghannam, & R. Roychowdhury, "Dead Reckoning Correction Utilizing Patterned Light Projection," U.S. Patent 11,662,208 B2, May 30, 2023
5. D. J. Berels, J. Engels, **S. Mayberry**, G. K. Thomas, & M. V. Volpone, "Motor Vehicle Floor Assembly with Recesses for Electrical Lines and Electrical Modules," U.S. Patent 11,364,956 B2, Jun. 21, 2022

Patents Pending

1. **S. Mayberry**, "Systems and Methods for Predicting Travel Destination of an Automobile Based on Attire Worn by Individual," U.S. Patent Application Pub. No. US 2020/0249046 A1, Aug. 6, 2020
2. **S. Mayberry** & R. Sohmshetty, "Stackable Battery Assemblies and Methods of Use," U.S. Patent Application Pub. No. US 2022/0007526 A1, Jan. 6, 2022
3. R. Sohmshetty, V. Rajendra, & **S. Mayberry**, "Systems and Methods for Ensuring Privacy in an Autonomous Vehicle," U.S. Patent Application Pub. No. US 2022/0253550 A1, Aug. 11, 2022
4. D. J. Berels, M. Y. Ghannam, R. Roychowdhury, & **S. Mayberry**, "Independent Conductive Tape Dispensing System for Manufacturing of Electrical Distribution Circuits in Vehicles," U.S. Patent Application Pub. No. US 2022/0097317 A1, Mar. 31, 2022
5. R. Sohmshetty, **S. Mayberry**, V. Rajendra, & S. Hoff, "Stand-Alone Inspection Apparatus for Use in a Manufacturing Facility," U.S. Patent Application Pub. No. US 2022/0136872 A1, May 5, 2022
6. R. Roychowdhury, D. J. Berels, M. Y. Ghannam, & **S. Mayberry**, "System and Method for Circuit Testing Using Remote Cooperative Devices," U.S. Patent Application Pub. No. US 2023/0194586 A1, Jun. 22, 2023

Hardware

Miniature Underwater Robot (MUR)
Open-source underwater robot with custom controller, custom power management system, and ML capabilities.

BlueBuzz Acoustic Modem
Open-source acoustic modem for underwater communication.

Multi-Use Autonomous Robot for People and Material Transport
Person and material transport robot that can navigate autonomously, load and unload packages, and transport people. Contributions include electrical, software, and mechanical design and implementation.

Autonomous Wall Unit for Material Storage and Management
Wall unit that can communicate with robotic infrastructure to autonomously accept, store, and deliver packages. Contributions include electrical, software, and mechanical design and implementation.

Awards

Ford Recognition Award — Aug 2019
For exemplary diligence and team work

Ford Recognition Award — July 2020
For design and implementation of in-plant material delivery robot

Academic All-American — May 2015
MIT Swimming

Teaching Experience

Teaching Assistant — Spring 2021-Present
Georgia Tech Vertically Integrated Projects
Instructor: Fumin Zhang, Ph.D
Georgia Institute of Technology

Project Team Leader — Spring 2017 - Fall 2017
Design and Implementation of Hydrogen ICE (HICE)
Instructor: Douglas Hart, Ph.D
Massachusetts Institute of Technology

References

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Raj Sohmshetty, Senior Technical Specialist
Advanced Robotics and Analytics, Phone: 734-507-0353
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School of Mechanical Engineering, Phone: 617-253-2178
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