

Bharath Sivaram

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Education

M.S. Robotics <i>University of Minnesota - Twin Cities</i> GPA: 3.8	Expected May 2023
B.S. Mechanical Engineering <i>University of Minnesota - Twin Cities</i> GPA: 3.4	2021

Experience

Engineering Intern, <i>GRIP Molecular</i> St.Paul, MN	June 2021-Aug 2021
<ul style="list-style-type: none">• Prototyped and optimized device housing designs using Fusion360 and SLA 3DPrinting• Fabricated PDMS microfluidics and tested pressure methods for user-friendly sample delivery• Designed PCBs and casing for efficient chip testing and simple device use for nurses	
Research Assistant, <i>Tithof Lab</i> Minneapolis, MN	Sept 2020-May 2021
<ul style="list-style-type: none">• Ran simulations using MATLAB to investigate behavior of 2D flows powered by random magnet arrays• Built and verified test rig to conduct 2D flow experiments• Shared results and conducted literature reviews weekly regarding 2D flow and glymphatics	
Co-Op Engineer, <i>Medtronic</i> Moundsview, MN	Sept 2019-Aug 2020
<ul style="list-style-type: none">• Performed a literature review and established the minimum contact force for a gold contact interface in next-gen pacemaker design• Analyzed MATLAB models of device moisture and calculated desiccant amount to meet requirements• Researched Ti alloy stress relaxation and wrote a test plan for battery spring design based on research• Drafted plan and prepared samples for crack resistance testing of wire used in a power transfer assembly	

Projects

Object Motion Recreation	Fall 2021
<ul style="list-style-type: none">• Used MATLAB to recreate motion from a Xbox Kinect Point cloud video• Leveraged clustering and ICP alignment to isolate and plot motion of a swinging object• Obtained accuracy within 15% when recreating motion without a base model point cloud	
Autonomous Package Collect/Drop	Fall 2021
<ul style="list-style-type: none">• Used a Turtlebot and ROS to demonstrate small scale package delivery in unknown environment• Integrated USB-camera and Aruco pose tracking for package alignment• Used ROS and Python to write functioning node allowing for Turtlebot autonomy• Tested nodes in Gazebo and transferred to physical system	
Microfluidics for Rapid Diagnostics	Spring 2021
<ul style="list-style-type: none">• Used Solidworks and COMSOL to design channel paths for optimal flow profile• Verified simulation results in MATLAB using simplified math modeling of system• Wrote detailed plan regarding materials/manufacturing for microfluidic channels and device shell	

Skills

Software: Python, MATLAB, ROS, Linux, C++, PTC CREO, Fusion360

Coursework: Machine Learning, Robot Vision, NLP, Spatial Enabled AI, Sensing/Estimation

Languages: English, Tamil, Spanish