

CURRICULUM VITAE

Srivatsan Balaji

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EDUCATION

- **University of Washington** Seattle, WA
Master of Science (MS), Mechanical Engineering; GPA: 3.70 *Sep 2021 - Mar 2023*
- **SRM Institute of Science and Technology** Chennai, India
Bachelor of Technology (B.Tech), Chemical Engineering *Jul 2017 - May 2021*

RESEARCH EXPERIENCE

- **Research Engineer / Faculty RA** *Nov 2024 - Oct 2025*
Intelligent Machines and Materials Lab, Oregon State University, Corvallis OR *Supervised by Dr. Joseph Davidson*
 - Developed a flexible tactile sensor-integrated end effector to investigate feedback mechanisms for subsea manipulation
 - Programmed a gripper state estimation tool to display position information, complementing visual perception during human-supervised operations
 - Designed and executed a data collection procedure to quantify slip performance for future training and validation of slip detection ML models
 - Built a sensorized parallel-jaw end effector for soft fruit harvesting proxy, validating the utility of the proxy for learning blackberry harvesting
- **Research Engineer / Graduate Researcher** *Jan 2022 - Sep 2024*
Transformative Robotics Lab, University of Washington, Seattle WA *Supervised by Dr. Jeffrey Lipton*
 - Developed a multi-stage soft robot arm using mechanical metamaterial, resulting in successful vertical payload lifting of up to 2.3 kg
 - Designed and built a soft gripper using additively-manufactured mechanical metamaterials with a demonstrated success rate of 86% on the YCB object dataset
 - Achieved a 93% reduction in lateral deformation by optimizing strain limiting layer designs using FEA simulations for soft pneumatic and electrically-driven actuators
 - Created data analysis pipelines using Python and MATLAB for material characterization and test data, reducing processing time by 30%
- **Undergraduate Student Researcher** *Jun 2020 - Mar 2021*
Department of Chemical Engineering, SRM Institute of Science and Technology, Chennai, India
 - Investigated fluid flow in a single-particle system to understand fluid-solid interaction, providing a foundational model for multi-particle system studies
 - Evaluated the effect of solid hold up in packed columns using Ansys Fluent, predicting pressure drops with an average deviation of 7%
 - Validated use of CFD simulations to determine heat transfer characteristics in microchannels, deviating from analytical correlations by 2.6%

PUBLICATIONS

- Ian Good, Srivatsan Balaji and Jeffrey I. Lipton, “Torque Responsive Metamaterials Enable High Payload Soft Robot Arms”. *Under Review - IROS 2026*
- Ian Good*, Srivatsan Balaji* and Jeffrey I. Lipton, “Torsion Resistant Strain Limiting Layers Enable High Grip Strength of Electrically-Driven Handed Shearing Auxetic Grippers”. *Accepted: IEEE RoboSoft 2026*. *Co-first authors.
- Chelse VanAtter, Srivatsan Balaji, Joseph R. Davidson, “A Sensorized Blackberry Proxy for Learning Soft Fruit Harvesting”. *Accepted: IEEE RoboSoft 2026*
- Aiden Shaevitz, Srivatsan Balaji, Matthew L. Johnston, and Joseph R. Davidson. “Flexible Barometric Tactile Sensors for Robotic Grasping Applications.” In 2025 IEEE SENSORS, pp. 1-4. IEEE, 2025.
- I. Good, S. Balaji and J. I. Lipton, “Enhancing the Performance of Pneu-Net Actuators Using a Torsion Resistant Strain Limiting Layer,” 2024 IEEE 7th International Conference on Soft Robotics (RoboSoft), San Diego, CA, USA, 2024, pp. 235-242, doi: 10.1109/RoboSoft60065.2024.10521982.

PRESENTATIONS

- “Enhancing the Performance of Pneu-nets Actuators using 3D-Printed Torsion-Resistant Strain Limiting layers”. *Digital Fabrication (DFab) Symposium 2024, University of Washington*.
- “Computational Fluid Dynamics Simulation of Flow of Liquid in Packed Bed Columns”. *SRM Research Day 2021*.

SKILLS

- **Technical Skills:** CAD Modeling, Data Analysis, Rapid Prototyping, FEA & CFD Analysis
- **Tools:** SolidWorks, Fusion 360, Ansys (Mechanical, Workbench, Fluent)
- **Programming Languages:** MATLAB, Python
- **Soft Skills:** Scientific and Technical Writing, Presentation, Documentation