

SRIJAN DUGGAL

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SUMMARY

Creative and adaptable robotics engineer with an entrepreneurial spirit and proven track record of leading teams on complex problems. Highly passionate about continual learning, data-driven decisions, collaboration, and creating a positive culture.

EXPERIENCE

Sr. Robotics Software Engineer – Autonomy, Controls, and Perception

Manchester, NH

DEKA Research & Development

August 2022 — Present

Autonomous Vehicle – Perception & Autonomy (1.5 yrs)

- Led a team of 7 to bring 2.5D Kalman filter-based terrain estimation into the autonomy stack via lit review, parallel experimentation, and iterative reprioritization. Patent filed.
- Owned real-time occupancy grid module, doing sensor fusion with LiDAR, Stereo Cameras, Radars using Bayes filter
- Built high-res (5cm) grids to reduce narrow-space indoor navigation failures by 5x using multithreading and GPU kernels
- Adding offline reproducibility of representation in order to improve robot behavior in edge cases

Automated Wet-Lab Device – Controls Lead (3 months)

- Scoped project through customer visit, user stories, and system modeling (activity/architecture diagrams)
- Led a team of 4 to develop POCs addressing key controls/perception risks
- Built POCs for Mask-RCNN pipeline (auto-labeling, training, deployment) and sub-mm visual servoing with 6-DoF robot arm

Automated Beer-Pouring Machine – Software Architect / Controls Lead (4 months)

- Co-led a cross-functional team of ~20 on a tight-timeline to deliver full product. Patent filed.
- Enabled parallel development by defining SW architecture/interfaces and controls strategy (tap actuation, cup grasping/tilting)
- Set up containerized dev environment, Debian deployment, process startup via systemd, and logging infrastructure

Other Projects – Motion Planning, Controls, Computer Vision

- Designed and implemented motion planning and controls stack for a 2-axis gimbal and a PPR gantry using real-time frameworks, inverse kinematics, state machines, and behavior trees
- Designed blood temp controller for organ preservation device using thermal modeling and Monte Carlo, cutting warmup time 60%
- Developed multi-view camera CV approaches to reduce false positives to 1% for drug-delivery manufacturing defect detection

Hip Exoskeleton Research Team Lead

Atlanta, GA

Georgia Tech, Exoskeleton and Prosthetics Intelligent Controls Lab

Jan 2019 — May 2021

- Trained deep learning models for gait-phase estimation using TensorFlow and Keras (Published in IEEE RA-L)
- Developed a knee-exo controller to increase human carrying capacity (filtering, controls on Raspberry Pi with Python/ROS)

Managing Partner & Lead Engineer

Miami, FL

Eifosoft Solutions, LLC

May 2018 — Present

- Built web app, main server, and microservices for 2000+ user tournament management software with React, Node.js, and AWS

Business Strategy Advisor

Remote

Private Manufacturing Company (~\$8M Revenues)

March 2025 — Present

- Partnered with owner to analyze financials, understand profitability issues, set net income targets based on ROE, and restructure sales incentives around high-margin products

ADDITIONAL EXPERIENCE

R&D Test Engineering Intern – Intralox LLC, Logistics and Material Handling

Hanover, MD

- Modeled friction behavior to inform next-gen controls design.

May — August 2021

Graduate Teaching Assistant – Georgia Tech, ME 2110

Atlanta, GA

- Mentored students in prototyping: soldering, laser cutter, wood tools, 3D printer, Arduino.

Aug 2021 – May 2022

Modeling and Simulation Intern – Automation Intelligence LLC, Digital Twins

Atlanta, GA

- Built Emulate3D digital twins for robot-based sorting; delivered client demos and optimization reports.

May–Aug 2020

Senior Design Project – Georgia Tech

Atlanta, GA

- Designed low-cost neonatal incubator for local fab w/ Dr. in Ghana using analog controls & SolidWorks

Jan 2021 — May 2022

EDUCATION

Georgia Institute of Technology

Atlanta, GA

MS in Mechanical Engineering (Automation and Robotics) **GPA 4.0**

May 2022

BS in Mechanical Engineering, Minor in Robotics **GPA 4.0**

May 2021

PUBLICATIONS

I. Kang, D. D. Molinaro, S. Duggal, et al. *Real-Time Gait Phase Estimation for Robotic Hip Exoskeleton Control During Multimodal Locomotion*. IEEE Robotics and Automation Letters, vol. 6, no. 2, pp. 3491-3497, 2021.

SKILLS

Development: C++, OpenCV, ROS, SYCL/DPC++, Ubuntu/Linux, PyTorch, Docker, gRPC, AWS, Python, Javascript, MySQL

Design: System Design, Sequence & Architecture diagrams, Object-Oriented Design, User stories, PlantUML, SolidWorks

Robotics: Control systems, classical computer vision, dynamic modeling, multithreading/GPU kernels, Kalman filtering, CNNs