

# SAMEER ARJUN SATHEESH

[sameerarjuns@outlook.com](mailto:sameerarjuns@outlook.com) | +1 2404248528 | [LinkedIn](#) | [Portfolio](#) | [GitHub](#) | [YouTube](#) | Salt Lake City, UT

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## SKILLS

**Robotics & Autonomy:** ROS/ROS2, SLAM, Path Planning (RRT\*, MAPP), Sensor Fusion, OpenCV, Kollmorgen stack  
**Software & Control:** Python, Embedded C++(Firmware), MATLAB, PLC (Ladder logic), Git, JIRA, Docker, Linux (Ubuntu/Bash), TwinCAT3  
**Mechanical & Simulated:** Siemens NX, ANSYS (FEA), SolidWorks, Gazebo, AnyLogic, GD&T, DfM  
**Protocols & Diagnostics:** CAN bus, XML/JSON, TCP/IP, Wireshark, API Integration, Toyota DataCollector, Elasticsearch

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## EDUCATION

**University of Maryland, College Park** *Aug 2022 - May 2024*  
Master of Engineering in Robotics | CGPA: 3.78/4.00  
**Visvesvaraya Technological University, India** *Aug 2016 – Aug 2020*  
Bachelor of Engineering in Mechanical Engineering | CGPA: 8/10

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## WORK EXPERIENCE

**Toyota Material Handling / The RAYMOND Corp.** | *Applications Engineer II* *Jul 2024 – Present*  
• **Architected and deployed 26 autonomous forklift systems** utilizing Kollmorgen NDC Solutions, specializing in AGV path planning, mission logic design, and robust system architecture  
• **Developed localization and routing models** for site layouts, ensuring scalable navigation for AGV fleets interacting with AMRs  
• **Resolved system failures** via Wireshark and CAN diagnostics, improving control logic and fleet reliability  
• **Integrated AGV platforms with WMS/ERP** via APIs for automated task execution and real-time tracking  
• **Standardized technical documentation** and led training to streamline internal and customer onboarding

**Stanley Black and Decker Inc.** | *Electro-Mechanical Engineering Intern* *Jun 2023 - Aug 2023*  
• **Engineered SBS (Single Board Solutions) trigger modules** for universal power tool architectures using CATIA, optimizing mechanical design and assembly  
• **Resolved DeWalt impact drill failures** and co-introduced polymer-based capacitors to SBS architectures to enhance module reliability and electrical performance  
• **CraftsMan EV Charger pipeline** for innovation challenge, demonstrating strategic product development & market expansion

**MOLEX India Business Services Pvt. Ltd.** | *GET* *Mar 2021 - Jul 2022*  
• **Designed and analyzed Power and Signal connector systems** using Siemens NX for diverse, high-performance packaging applications  
• **Saved \$1 million annually** by implementing FEA-based mechanical drop test simulations, which significantly improved connector robustness and accelerated time-to-market  
• **Increased current carrying capacity by 120%** by validating liquid cooling technologies for data center high power & signal connectors.  
• Presented technical results at the 2022 Open Compute Project Global Conference

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## PROJECTS

**Autonomous 4-Wheeled Mobile Manipulator** | *Python, Raspberry Pi, Arduino, OpenCV* - [YouTube](#)  
• **Architected a differential drive robot** with a parallel-jaw gripper, utilizing a Raspberry Pi 4 for high-level decision-making & an Arduino Nano for low-level motor control  
• **Developed a computer vision pipeline** for real-time color & image recognition to identify targets & depth estimation for tasks  
• **Implemented robust sensor fusion** using IMU, ultrasonic sensors, and wheel encoders to achieve localization & closed-loop control

**Swarm Robotics for Industrial Applications** | *C++, ROS2 Humble, Gazebo* - [GitHub](#)  
• **Architected a swarm system** implementing Multi-Agent Path Planning (MAPP) for 20 TurtleBots achieving coordinated navigation  
• **Leveraged Agile methodologies** to develop communication stack & obstacle avoidance logic within the ROS2 ecosystem

**Improved Path Planning via RRT\*N Algorithm** | *Python* - [GitHub](#)  
• **Developed a "Normalized" RRT\*** variant using a probability distribution function to bias node generation toward the goal, significantly reducing computational overhead  
• **Optimized path length and convergence rates** by integrating steering and backtracking functions, outperforming standard RRT\* in complex occupancy grids

**Time-Varying Ankle Impedance Analysis** | *MATLAB* - [GitHub](#)  
• **Quantified ankle joint inversion-eversion** and modeled bio-mechanical control strategies to estimate impedance parameters (stiffness and damping), enabling the development of adaptive robotic assistance for gait rehabilitation

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## ACHIEVEMENTS

**Best Research Paper Award** | Make in India, Research Paper Contest, Project Council, Government of India  
**Winner at Super Float Idea Challenge** | MOLEX India Business Services Pvt. Ltd.  
**Certificate of Appreciation** | Emergency Response Team at MOLEX-KOCH Industries for COVID-19 pandemic volunteer work