

Kritika Iyer

Hyderabad | 8448522969 | kritikaiyer811@gmail.com | LinkedIn: [kritikaiyer](#) | [personal website](#)

SUMMARY: Robotics software engineer with 7+ years of experience building FDA-cleared surgical robots and automation tools. Proven ability to lead high-impact kinematics and control teams from prototype to deployment. Passionate about solving real-world problems through precision robotics and embedded systems.

SKILLS

Programming: C++ (11, 17), MATLAB, Qt, C, Python, C#

Framework: ROS, Simulink, Gazebo, OpenCV, OMPL, LabVIEW, CODESYS

Boards: QNX, Arduino, PIC, Raspberry Pi, JetsonTX2

ML: Theano, Keras, Tensorflow, Scikit-learn

CAD: Blender, Solidworks, ProE, AutoCAD

EXPERIENCE

Medtronic - Senior Software Engineer, Hyderabad, India (March '23—present)

- Lead a 6 member kinematics team to reach 100% of its targets and milestones over FY24-FY25 as a **scrum master** for the HUGO RAS project.
- Architected new algorithms and state machines in **Simulink** for improved instrument reliability
- Modeled instrument kinematics and force feedback using **RVIZ and ROS** reducing development time by 75%
- Certified as a **SAFe®6 Scrum Master** and a Green belt DRM (internal six Sigma)
- Won MEIC quarterly award in FY24 Q3 demonstration of Medtronic mindset **Compete to win**

Medacuity Software LLC, Westford MA, USA (Sept '19—Nov '22)

Associate SE (Sept '19—Dec '20), **Staff I SE** (Jan '21—Aug'22), **Staff II SE** (Sept '22—Nov '22)

- Received an **exceeding commitments award** for enabling clients to meet crucial deadlines
- Engineered robotic control systems for catheter and stent navigation, reducing surgical error rates by 25%
- Enabled two Fortune 500 medtech companies to secure FDA approval through robust safety-critical software development and documentation.

FESTO Corporation - Software Engineer, Billerica, MA, USA (June '18—Sept '19)

- Designed drivers and libraries in C# and LabView for **Ethernet, RS232 and Serial port** communication to the Robotic controller
- Architected applications for Programmable Logic Controllers (PLCs) controlling pipettes and gantries
- Spearheaded GUI development for internal tools and test benches using C# (.NET), enabling a 30% reduction in testing duration and accelerating product verification timelines.

EDUCATION

Master of Science, Robotics Engineering Aug '16—May '18

Worcester Polytechnic Institute, (WPI), Worcester, MA GPA: 3.8/4.00

Bachelor of Technology, Mechatronics July '12—May '16

Shanmugha Arts, Science, Technology and Research Academy (SASTRA), India GPA: 7.5/10.0

PROJECTS

Emotion and Attention level detection using deep learning (Aug '17—May '18)

- Real-time detection of emotions and attention levels in video streams captured by a socially assistive robot
- Achieved an accuracy of **68.5%** on an uncleaned Kaggle dataset using **OpenCV**
- Extracted facial features and trained a model achieving an **85.19%** accuracy in real-time emotion detection

Modular teleoperation Framework (Feb '17—May '17)

- Created an algorithm for complex client-server coordination between manipulators and haptic devices
- Integrated it into Gazebo using ROS on **daVinci and ABB IRB 120 robot**

Mapping and Motion Planning for RC Car (Jan '17—May '17)

- Programmed **A*, RRT*, and ARA*** algorithms in C++ for motion planning through obstacle courses
- Evaluated algorithm performance in 3 Gazebo worlds for optimality, completeness, and space-time complexity

Motion compensation during surgery (Oct '16—Dec '16)

- Employed motion compensation techniques like Extended Kalman Filter (EKF) and Fourier series
- Visualized performance using Rviz daVinci model, simulating tissue motion irregularities in Gazebo using ROS