Kritika Iyer

9261 Prestige High Fields, Financial District, Nanakaramguda, Telangana 500032
+91 8448522969 | kritikaiyer811@gmail.com | iyerkritika.github.io | in kritikaiyer

SUMMARY: Software Engineer with 6 years of industry experience in robotics and medical devices. Looking to impact the Robotics industry by developing products that further our economy and infrastructure

SKILLS

Software and Tools: Git, ROS, Gazebo, OpenCV, OMPL, Simulink, Qt ,Solidworks
Programming Languages: C++ (11, 17) , Qt, C, Python, MATLAB, C#(.NetFramework)
Machine learning packages: Theano, Keras, Tensorflow, Scikit-learn, AWS(RoboMaker)
Boards: QNX, Arduino, PIC, Raspberry Pi, JetsonTX2

EXPERIENCE

Medtronic - Senior Software Engineer, Hyderabad, India (March '23—present)
- Lead a 6-member kinematics team for the HUGO RAS surgical robot
- Enhanced instrument reliability by optimizing algorithms and interfaces in **Simulink**
- Simulated instrument kinematics and force feedback using **RVIZ and ROS**

Medacuity software LLC, Westford MA, USA
Associate SE   Sept '19—Dec '20
Staff I SE   Jan '21—Aug'22
Staff II SE   Sept '22—Nov '22
- Acknowledged with an **award** for exceeding commitments to clients, aiding in meeting crucial deadlines.
- Implemented Robotic Controls in **C++, Qt, C#, C** using **QNX** for medical devices like catheter and stent placement aides to reduce surgical risk by 25%
- Supported two major medical device companies in achieving FDA approval for their robots and product releases

FESTO Corporation - Software Engineer, Billerica, MA, USA (June '18—Sept '19)
- Developed drivers in C# and LabView for **Ethernet, RS232 and, Serial port** communication to the RC
- Utilized Codesys to develop applications for Programmable Logic Controllers (PLCs) controlling pipettes and gantries
- Designed and implemented Graphical User Interfaces using C#(.NET framework) for products and test benches reducing testing time by 30%

INTERNSHIPS

Persimmon Technologies, Wakefield , MA, USA (July '17—Aug '17)
- Designed a test bench for Encoders in Solidworks with 25 individual components and 221 assembled components

Maruti Suzuki India Ltd, Gurugram, India (May '15—Jun '15)
- Studied trajectory controllers for 6 DOF Fanuc, ABB industrial robots used in car manufacturing
- Designed ladder logic for bottle filling station involving complex pick, place and fill operations using Siemens PLC

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 (PABI)
- Achieved an accuracy of **68.5%** on a 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)
- Developed an algorithm for complex client-server coordination between manipulators and haptic devices
- Implemented it in Gazebo using ROS on **daVinci and ABB IRB 120 robot**

Mapping and Motion Planning for RC Car (Jan '17—May '17)
- Implemented **A*, RRT*, and ARA*** algorithms in C++ for motion planning through obstacle courses
- Evaluated algorithm performance in 3 Gazebo worlds comparing optimality, completeness, and space-time complexity

Motion compensation during surgery (Oct '16—Dec '16)
- Applied motion compensation techniques employing Extended Kalman Filter (EKF) and Fourier series
- Visualized performance using Rviz daVinci model, simulating tissue motion irregularities in Gazebo using ROS

Kiosk for Autistic Children (Oct '15—June '16)
- Designed and constructed a gaming kiosk with integrated motor skill enhancement tasks
- Programmed a PIC board with input from sensors to monitor speed, gripping methods, and overall improvement