Senthil Hariharan Arul

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EDUCATION

UNIVERSITY OF MARYLAND — **COLLEGE PARK, MD**
M.S. Systems Engineering GPA: 3.9/4 — Aug 2017 - Current

NATIONAL INSTITUTE OF TECHNOLOGY — **TIRUCHIRAPPALLI, INDIA**
B.Tech in Instrumentation and Control Cum. GPA: 8.99/10 — Grad. May 2017

RESEARCH EXPERIENCE

ROBOTICS AND MANUFACTURING AUTOMATION LABORATORY, MCMASTER UNIVERSITY — **MAY'16 - AUG'16**
Research Intern (Mitacs Globalink Scholar) — Hamilton, Canada
Project: Software development for autonomous collaborative robotic arm

- Successfully developed a C++ software for performing real-time obstacle detection using point cloud data and experimentally tested its working.
- Implemented an autonomous grasping program to identify object in the workspace and calculate the direction of approach of the end effector.
- Analyzed the performance of processing RGB point cloud data on Nvidia Jetson and Windows PC platform.

Project guide: Dr. Gary Bone, Professor/Associate Chair (graduate)

SKILLS

Languages:
C, C++, Python, HTML
Languages (familiar):
PHP, JavaScript
Frameworks/ Libraries:
ROS, PCL, OpenCV
Softwares:
Linux, MATLAB, Arduino IDE, Processing IDE

HEALTH-CARE TECHNOLOGY INNOVATION CENTRE — **DEC'15 – JAN'16**
Research Intern — Chennai, India

- Aided in designing and testing Analog-Front End (AFE) for measuring Ballistocardiogram Signals.
- Worked extensively on LabVIEW for designing the measurement system.

Project guide: Malay Shah, Electronics Design Engineer, HTIC

ROCKWELL AUTOMATION — **JUN'15 – JUL'15**
Industrial Trainee — Chennai, India

- Implemented control loops for simple industrial scenarios on a PAC using ladder logic.

INTERNET OF THINGS BY INTEL — **DEC'14 – JAN'15**
Winter Intern — Tiruchirappalli, India

- Developed a body temperature and sleep state monitoring jacket for infants with temperature adaptive heating system.
- Developed a website to display the data and provide SMS alerts in case of an emergency.

PROJECTS

Q-learning Obstacle Avoidance for Turtlebot
Successfully developed a C++ software to train the q-table for maze navigation using ROS and Gazebo.

Automatic system for removal of artifacts from EEG signals using Independent Component Analysis (ICA) and Hurst Exponent (Undergraduate thesis)
Successfully Developed a MATLAB software to perform automatic detection and removal of eye blink artifacts (EOG signals) from EEG channel data.

Real-time 3D reconstruction using Microsoft Kinect
Developed a Turn-table 3D scanner using Microsoft Kinect and OpenCV.