

Vishal Gattani

7700 Adelphi Rd, Apartment 23, Hyattsville, MD 20783

Phone: +1(480) 376 3397 | ✉ vgattani@umd.edu

🌐 <https://github.com/vishalgattani> | 🔗 <https://www.linkedin.com/in/vishal-gattani-71692611a/>

EDUCATION

University of Maryland College Park, MD

Master of Science, Systems Engineering

Anticipated May 2023

3.73/4 CGPA

International Institute of Information Technology, Bangalore (IIIT-B)

Integrated Master of Technology, Electronics and Communication Engineering

Aug 2015 – Sept 2020

3.54/4 CGPA

RESEARCH AND INTERNSHIP

Graduate Research Assistant

Simulation-based System Design Lab (SBSDL), UMD

Nov 2021 – Present

College Park, MD

- Building assurance cases for simultaneous verification and validation through multi-robot simulation using Unity.
- Using Scenario descriptive languages to yield concrete scenes which can be simulated to produce training or testing data to further improve development and operational testing.

Research Associate

Surgical and Assistive Robotics Lab (SARL), IIIT-B

Oct 2020 – July 2021

Bangalore, India

- Experimented with depth cameras such as Microsoft Kinect V2 and Azure Kinect for analyzing and comparing efficient human motion capture.
- Integrated a dual arm robotic system for biomimetic control via Motion Capture using Microsoft Kinect Azure.
- Conducted guided experiments, maintained software and precise documentation of findings.

Teaching Assistant

ESS 101-Programming I (C Programming)

Aug 2019 – Dec 2019

Bangalore, India

Summer Intern

Mercedes-Benz Research & Development India

May 2018 – July 2018

Bangalore, India

- Worked with an inter-disciplinary team on a next generation electric car to come up with test plans and solutions for various problems.
- Developed a RL-based HVAC Optimization responsible for maintaining the temperature of the electric vehicle.
- Developed a software tool for compiling, and sorting information to prepare source data for computer entry.
- Generated interactive reports to enable end users to create highly customized reports.

PUBLICATIONS

V. Gattani and M. Rao, (2021), "An integrated system design interface for operating 8-DoF robotic arm", Published in 2021 ICCAS.

ACADEMIC PROJECTS

Path Planning of Point/Rigid Robots | *Python*

March 2022

- Implementation of Dijkstra, A*, RRT, PRM to search and execute a robot's path to a destination.

Self Replicating Robot System | *Python*

Nov 2022

- Modelling, Verification and Validation to determine performance and reliability of 6 different configurations of a self replicating robotic system.

Kinematic Control of a biomimetic robot arm for telerobotic applications

Master's Thesis

Aug 2019 - Sept 2020

- Developed a graphical interface to visualize, program and control upper-limb motion using Blender Game Engine.
- Executed different control strategies to drive an 8 Degree of Freedom robot arm using the developed interface.
- Conducted guided experiments applicable to telerobotic scenarios.

Scene Graph using OpenGL | *C++, OpenGL*

May 2019

- Using OpenGL to develop GUI for rendering 3D applications and animation.
- Development of hierarchical models (scene graph), hierarchy of transforms, rendering/integration with OpenGL, shader programming - vertex and fragment shaders.

ACADEMIC PROJECTS

LASER Communication System | *Circuit Design, Sensors*

Nov 2017

- Designed an electronic circuit to transmit and receive signals using laser diodes and photo-resistors respectively.
- Audio signals from a microphone are amplified using an integrated circuit and transmitted in the form of a laser pulse using a laser diode.
- The receiver, a photo-resistor situated 1 meter away, converts the laser back into the audio signal using a portable speaker.

Radar Arduino | *Java, Circuit Design, Sensors, Graphics*

Dec 2016

- Designed a 2-Dimensional Radar using SONAR (Ultrasonic Sensors) and an Arduino microcontroller.
- Developed the GUI in Java to visualize the Radar.

TECHNICAL SKILLS

Languages: Python, C++, C

Software: Blender Game Engine, Unity, OpenGL, MATLAB, L^AT_EX, LTSpice, MultiSIM, Arduino, Processing, Cameo Systems Modeler

Developer Tools: ROS

Operating Systems: Windows, Linux