

Faiyaz A. Chowdhury

Atlanta, GA 30308 • (404) 993-8179 • faiyaz.chowdhury0@gmail.com • OPT Authorized • Full-Time • Controls & Robotics

OBJECTIVE

Electrical and Computer Engineering M.S. Georgia Tech graduate seeking fulltime in controls, robotics or electrical engineering

EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, GA

GPA 3.71

Master of Science in Electrical and Computer Engineering, Controls Specialization

August 2018 – Dec 2019

Bachelor of Science in Electrical Engineering, Robotics Minor

August 2014 – May 2018

SKILLS

Programming: MATLAB, C++ (CUDA), Python (ROS), C, Java, Swift, Assembly, VHDL, VBA, CSS, HTML, R

Software: CCS, Quartus II, NI Multisim, LTspice, NI ELVIS, LabVIEW, AWS, Autodesk Inventor, EAGLE (PCB)

Courses: State-Space Control, PID Control, Digital Control, Robotics, Computer Vision, DSA, AI, Dynamics, DSP

EXPERIENCE

BIOMEDICAL, DIGITAL & ANALOG ELEC. – Graduate & Undergrad Teaching Assistant May 2016 – December 2019

- Taught analog and embedded design concepts to class involving design and creation of biomedical devices
- Debugged digital and analog circuits using oscilloscopes and logic analyzers and explained related circuit concepts
- Oversaw projects involving programming DE2 FPGA in VHDL and SPICE to implement localization tasks with AmigoBot

GEORGIA TECH INFORMATION TECHNOLOGY – Web Developer

May 2019 – August 2019

- Identified and presented valuable actionable insights to clients using data acquired from Google Analytics
- Increased Exit % and reduced Pages per View by editing and testing websites using HTML, CSS, and Drupal

MITSUBISHI HITACHI POWER SYSTEMS SOUTH AFRICA – Developer

May 2017 – August 2017

- Developed UI in Visual Basic for powerplant executives to improve tracking of technical issues in 6 coalfired powerplants

PROJECTS

Atlanta, GA

SWARM ROBOT DECENTRALIZED NETWORKED CONTROL

August 2019 – December 2019

- Controlled swarm of robots using Robotarium MATLAB API to organize according to given agreement and animosity
- Adjusted consensus control laws so that robots would reach Lyapunov stability whilst keeping disagreeing robots apart

HELICOPTER ADAPTIVE CONTROL

January 2019 – May 2019

- Simulated unknown helicopter set-point trajectory control in MATLAB using MRAC control in nonlinear MIMO system
- Optimized gains of feedback controller using LQR and adapted these gains using CARE to match plant behavior to model
- Achieved full position controllability with differential flatness and eliminated nonlinear behavior with backstepping

BIPEDAL WALKING ROBOT

August 2016 – December 2016

- Built and enabled a bipedal robot to walk with OpenCM microcontroller using MATLAB dynamixel interface and servos
- Implemented forward kinematics to track the robot feet orientation with respect to the robot waist
- Implemented path planning using resolved-rate control and Optragen to generate trajectory that minimizes energy cost

COMPUTER VISION PROJECTS

January 2017 – May 2019

- Reduced computation time of 2D-DFT from 289 seconds to 3 seconds in C++ CUDA using cache memory inside a GPU
- Implemented object recognition in MATLAB to reach 90% accuracy deciding between faces and cars using feature spaces
- Programmed a TurtleBot in Python ROS to autonomously navigate its surroundings without collision with an Xbox Kinect
- Coded Raspberry Pi device that reads aloud visual text using Google OCR and Text-to-Speech API in Python

CAPSTONE PROJECT GLOVE CONTROLLER

January 2018 – May 2018

- Designed and built a glove controller that controls computer mouse and keyboard, with VR capabilities
- Achieved limited finger gesture control by configuring 5 pressure sensors and 5 IMUs
- Programmed the ESP32 Thing microcontroller in C++ to read and transmit sensor inputs to computer via Bluetooth

MBED PAC-MAN VIDEOGAME*January 2017 – May 2018*

- Assembled a Pac-Man themed game console with an Mbed kit, with gaming mechanics developed in C++
- Implemented searching algorithms, reinforcement learning and particle filters in Python to win game in a stochastic system

SPEAKER CABINET DEIGN*August 2017 – December 2017*

- Determined the ideal dimensions of a speaker box to optimally produce sound which can resonate within hearing range
- Tested the impedance of the speaker coil to represent entire electro-mechanical-acoustic system as an electrical circuit
- Reversed the desired transfer function to calculate the speaker box dimensions that satisfied the required resonance

AMIGOBOT SONAR LOCALIZATION AND MAPPING*January 2016 – May 2016*

- Mapped surroundings of AmigoBot controlled by DE2 FPGA using 8 sonar sensors and localized robot using odometry
- Programmed an FPGA in VHDL to create a virtual simple computer capable of following OP CODE assembly instructions
- Developed and tested solution in assembly language that navigates a grid to map the location of its obstacles

LEADERSHIP ROLES**Atlanta, GA****LETZCHILL** – *Founder, Developer**August 2019 – Present***HIGHVIEW TECHNOLOGIES** – *Startup Chief Marketing Officer (CMO)**May 2019 – September 2019***UNICYCLING CLUB GEROGIA TECH** – *President**January 2016 – September 2019***ETA KAPPA NU, BETA MU CHAPTER** – *Picnic Chair, Initiation Chair**January 2019 – December 2019*