Belal M. K. Said

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Education

Rutgers University-New Brunswick **09/2015 - 05/2019**

Bachelors of Science in Computer Science and Mechanical Eng
Dean's List (every semester)
GPA: 3.84/4.00

Relevant Coursework: Data Structures, Computer Architecture, Discrete Structures, Probability Theory, Artificial Intelligence, Circuits

Technical Skills

Proficient: C/C++, Java, Javascript (Node.Js, JQuery), Python (numpy, pandas), C# (ASP.Net, WPF), Matlab, SQL (MySQL, MSSQL). **Familiar:** PHP, Go, Flask, CUDA. **Technologies:** Git, Bash, Linux, Windows, Visual Studio, Eclipse

Experience

Colgate-Palmolive - Software Engineering Intern - Piscataway, NJ **06/2017 - Present**

- Built and designed OMNIPAL, an all-knowing web application that uses natural language to expose multiple data APIs
- Built a RESTful API in Node.Js to standardize voice command matching using MonogoDB as the NoSQL database
- Designed a library from scratch in javascript that generates simple machine learning models for OMNIPAL

PRACSYS under *Professor Kostas Bekris* **- Research Assistant - New Brunswick, NJ** **06/2017 - Present**

- Designed a path planner in C++ for Baxter's arm, a multi-jointed robotic arm with seven degrees of freedom, using Ceres Solver to solve the constraint system and then using A* to find the optimal action-path

SteerSuite under *Professor Mubbasir Kapadia* **- Research Assistant - New Brunswick, NJ** **06/2016 - 08/2016**

- Coordinated with a team of PhD students to optimize SteerSuite, a crowd simulator written in C++
- Reduced simulation time by 17% by implementing bounding boxes and Dynamic Bounding Volume Hierarchies
- Designed and coded a C# plugin to incorporate SteerSuite into Autodesk Revit and make it user friendly

Mechatronics Lab under *Professor Jingang Yi* **- Research Assistant - New Brunswick, NJ** **10/2015 - 04/2016**

- Built an indoors quadcopter tracker in C++ that uses multiple cameras and maps them to 3D space
- Designed a web interface that displays live data from quadcopters and their spatial locations

Projects

Speed Prediction (Matlab/Caffe) - github.com/belalmksaid/speed_prediction **07/2017 - Present**

- Predicted instantaneous speed of a moving car from a live dashcam video within ± 1 mile accuracy by using Farneback optical flow, a deep learning network, and exponential moving average

PacmanAI Lab (Javascript) - github.com/belalmksaid/PacmanAILab **01/2017 - Present**

- Implemented genetic algorithm with simple neural networks to teach an AI how to play pacman in javascript
- Built a simple framework from scratch to emulate multithreaded applications to avoid freezing the browser

Internet of Things (Javascript/Node.Js) - github.com/belalmksaid/ioi **01/2014 - 03/2017**

- Connected home electronic devices such as lamps, a fridge, a microwave, and a minivan to the internet using electrical IMPs and mapped them to a Node.Js server
- **Won Internet of Things award from Intel at PennApps 2014**

C# Raytracer (C#/C++) - github.com/belalmksaid/Disque-Raytracer **07/2014 - 08/2016**

- Developed a raytracer from scratch based on the book *Physically Based Rendering* by Matt Pharr. The goal of the project is to optimize raytracing using supersampling combined with multithreading and GPU assistance

Extracurriculars

IEEE - PacBot Team Captain - **github.com/belalmksaid/PacBotCode** **10/2015 - Present**

- Created an algorithm for the bot to navigate a maze and avoid the ghosts, optimized in Assembly to run on teensyduino. The robot was designed using a custom PCB circuit and a 3D printed body
- **Won first place at Harvard PacBot Competition 2017**