

# Belal M. K. Said

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## Education

### Rutgers University-New Brunswick

09/2015 - 05/2019

— B.E. in Mechanical Engineering & B.S. in Computer Science  
GPA: 3.83/4.00

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

## Skills

**Advanced:** C/C++, Java, Javascript, C#, Matlab  
**Proficient:** PHP, Python, R, HTML/ CSS, ABAP

**Technologies:** OpenCV, TensorFlow, CUDA, Unity, Node.js, AWS  
**Other:** Solidworks, Simulink, ANSYS

## Experience

### Colgate-Palmolive - Software Engineering Intern - Piscataway, NJ

06/2017 - Present

- Built and designed OMNIPAL in Node.js, an all-knowing web application that uses natural language to expose the HANA database
- Extended OMNIPAL using TensorFlow to predict order failures, create status reports, and produce on demand prediction models
- Implemented machine learning models such as Naive Bayes in R to predict employee retention rate

### PRACSYS under Professor Kostas Bekris - Research Assistant - New Brunswick, NJ

06/2017 - Present

- Designed a path planner for Baxter's arms, a multi-jointed arm with seven degrees of freedom, using a PDE solver
- Integrated path planning algorithms into VREP, an extensive robot simulator

### SteerSuite under Professor Mubbassir Kapadia - Research Assistant - New Brunswick, NJ

06/2016 - 08/2016

- Reduced simulation time by 17% by implementing bounding boxes and Dynamic Bounding Volume Hierarchies
- Developed an algorithm that uses directed graphs to model human behavior in rooms
- Designed and coded a C# plugin for Autodesk Revit to incorporate SteerSuite and make it user friendly

### AllState - Data Analysis Intern - Edison, NJ

06/2014 - 09/2014

- Increased customer service productivity by 25% using an algorithm that determines which customers are likely to switch insurance
- The algorithm would use a custom score to sort potential customers and optimize with feedback from customer service

## Projects

### Speed Prediction - [github.com/belalmksaid/speed\\_prediction](https://github.com/belalmksaid/speed_prediction)

07/2017 - Present

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

### Internet of Things - [github.com/belalmksaid/iot](https://github.com/belalmksaid/iot)

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 Microsoft and Intel**

### Waec - [github.com/belalmksaid/waec](https://github.com/belalmksaid/waec)

06/2016 - 09/2016

- Built the codebase for air highways in C++ and PX4 Autopilot using 3D spline parameterization
- Designed the drone autonomous system using a GPS-based PID system

### TrackerAPI - [github.com/belalmksaid/TrackerAPI](https://github.com/belalmksaid/TrackerAPI)

07/2014 - 08/2014

- Wrote a platform that lets users create custom APIs for dynamic data on a website of the user's choice
- **Won first place at CodeDay NY 2014**

## Extracurriculars

### IEEE - PacBot Team Captain - [github.com/belalmksaid/PacBotCode](https://github.com/belalmksaid/PacBotCode)

10/2015 - Present

- Created an algorithm for the bot to navigate a maze and avoid the ghosts, optimized 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**

### International Sanitation Organization - [internationalsanitation.org](http://internationalsanitation.org)

07/2013 - Present

- Helped found and fundraise for ISO, a legal 501c3 certified non-governmental organization, which has collaborated with UN recognized organizations to bring fresh water to thousands of people in Ghana