

Bereket Abraham

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EDUCATION

Carnegie Mellon University

Master of Science, Mechanical Engineering, GPA 3.9/4.0
Concentration: Robotics

Pittsburgh, PA

May 2017

Princeton University

Bachelor of Science in Engineering, Mechanical and Aerospace Engineering, GPA 3.1/4.0
Certificates in Applied and Computational Mathematics, Applications in Computing, and Robotics

Princeton, NJ

June 2013

PROJECT EXPERIENCE

RoboBuggy, Robotics Club, CMU

Fall 2016

- Leading the autonomous software sub-team for the RoboBuggy project, a self-driving downhill racer.
- Simulated and redesigned the Kalman filter based localizer and the trajectory planning routine. Tested monocular vision based SLAM algorithms for local path planning and obstacle avoidance.

Monocular Visual-Inertial State Estimation, Field Robotics Center, CMU

Fall 2016

- Optimizing an experimental ROS software package in order to run in real-time on a quadrotor.

Window Washer Robot, Mechatronic Design, CMU

Spring 2016

- Designed and fabricated a robot that could traverse vertical glass surfaces, as part of a team of five.
- Managed the control software, simulation, web development and joint design to enable horizontal motion.

WORK EXPERIENCE

NASA Goddard Space Flight Center

Mechanical Engineer Intern, Systems Engineering Team

Greenbelt, MD

May 2016 – August 2016

- Analyzed requirement verification reports in order to assess readiness to launch for the GOES-R weather satellite program.

AppNexus, Inc.

Software Engineer, Web Services

New York, NY

January 2015 – January 2016

- Implemented reporting features using C in core real-time web application to enhance ad buying product.
- Built out multiple web based API services in Java and PHP to decouple integration between systems.
- Built and maintained third party integrations with partner ad exchanges to unlock client spend.

Associate Technical Consultant, Global Services

July 2013 – December 2014

- Administered databases and servers, supported legacy code, developed best practices, integrated with third-party systems, and gathered requirements for the Services department.
- Advised clients on the AppNexus data warehouse, reviewed different technologies for data storage, and wrote ETL scripts to help export certain datasets.

Florida State University

Research Intern, Computational Fluids Laboratory

Tallahassee, FL

June 2012 – March 2013

- Utilized CFD Fortran code in order to simulate low speed, unsteady flow around a cylinder, which has applications in small-scale flight, such as the bio-inspired flow of birds and fish.

OTHER

Programming Languages: C, C++, Java, MATLAB, Python, JavaScript, PHP, HTML, MySQL, Bash

Past Projects: neural network based object detection, Internet enabled LED table, orbital simulation web app

Organizations: NSBE, CMU Robotics Club, Toastmasters, Engineers Without Borders

Presentations:

Abraham, B. & Fleury, L. (August 2016). *Rocket Powered Descent in R^3* . Paper presented at the NSBE Aerospace Systems Conference, Arlington, VA. Received the **Technical Paper Award** for best written paper.

Abraham, B., Taira, K. & Shih, C. (February 2013). *Low Reynolds number simulation of accelerating flow around 2D circular cylinders*. Poster session presented at the Emerging Researchers National Conference, Washington, DC.