David Michelman

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www.davidonbuildingthings.com

https://github.com/daweim0

OBJECTIVE:
Experienced software developer and robotics engineer seeking summer internship with a software development organization

EDUCATION:
Rensselaer Polytechnic Institute, Troy NY   GPA: 3.9/4.0 Graduation: May 2020
Pursuing dual degrees in Computer Science and Computational Mathematics

RELEVANT SKILLS:
Programming languages & Environments: Python, C++, Java, AVR C, ROS
Development Environments: Linux (Debian) & Windows

PROGRAMMING AND RESEARCH EXPERIENCE: **Summer 2017**
Research Assistant at University of Washington's (UW) Robotics and State Estimation Lab
- Wrote and trained convolutional Neural Networks in the Tensorflow library that generated highly discriminative image features for pose recognition and optical flow.
- Worked on optimizing the structure of different convolutional neural networks.
- Created an automated system to evaluate network structures, and modified our existing codebase to allow adding new network structures without breaking compatibility with existing networks.
- Worked closely with a post-doctorate machine learning researcher.
- Project code at https://github.com/daweim0/Just-some-image-features

Research assistant at UW's Sensor Systems Lab   **2014 through 2016**
- Developed and implemented a machine learning based control algorithm combined with a full simulator for balancing under-actuated and unstable robots (applied to an 'acrobot' robot).
- Wrote a fully instrumented simulator, with both visual and numeric analytic capabilities. Written primarily in Python with C extensions and the Open Dynamics Engine.
- Began to implement the control algorithm on real hardware with promising initial results.
- Worked alongside graduate students.
- Summary research paper can be found on my website describing our computer science approach to what previously has been treated as a more mathematical approach of control theory.

CURRENT EXTRACURRICULAR ACTIVITIES:
RPI Rock Raiders – Vice President   **Fall 2016 through present**
- Team competing in the University Rover Challenge (about 20 members)
- Vice president – Wrote reports on team's financial/facility resources and project management plan for competition organizers
- Directly oversaw Treasurer, Webmaster, and Social Media Manager
- Member of software development team, wrote control code for a rover-mounted robotic arm. Improving it and adding more intuitive UI for 2018 competition.

RPI Sport Taekwondo Club   **Fall 2016 through present**

ROBOTICS AND OTHER RELATED PROJECTS:
Digitally controlled robot arms – Two built for Science Olympiad Competition
- Used hand written inverse Kinematics, networking, basic electrical and mechanical engineering.
R/C Tricopter (3 rotor "quadcopter") built and programmed from scratch.
Three 3d printers, built during high school

PAST JOBS HELD:
Data Structures Tutor   **Spring 2018**
- Helped Data Structures students understand lecture material, do homework, and decipher compiler errors (4+ hours/week)

Teaching assistant at temple (TDHS)   **9th through 12th grade**
- taught kindergarten, third, fourth, and sixth grade students Jewish history and Hebrew.

HOBBIES: Black belt in Karate (American Kenpo), bicycling, film making