Zachary Barnes

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EDUCATION

UNIVERSITY OF PITTSBURGH

BS in Computer Engineering
Expected April 2016 | Pittsburgh, PA
Swanson School of Engineering
GPA: 4.0 / 4.0

MT. CARMEL HIGH SCHOOL

Salutatorian | GPA: 4.5 / 4.0
Grad. May 2012

LINKS

GitHub:// zabarnes
LinkedIn:// zabarnes1
Personal:// zabarnes.com
DesignHub:// pittdesignhub.com

COURSEWORK

UNDERGRADUATE

Cyber-Physical Systems (at CMU)
Systems Software
Algorithms
Data Strucures
Control Systems
Signals and Systems
Digital Logic Design
Computer Organization

SKILLS

PROGRAMMING

Knowledgeable:
Java • C • Matlab • Python • LaTeX
Familiar:
HTML • JavaScript • UNIX • MySQL

SOFTWARE

SolidWorks

HARDWARE

Arduino Uno • BeagleBone Black
Rasberry Pi • FPGA

AWARDS

Health Innovators Fellowship
NSF REU Fellowship
University Scholar (top 2%)
University Honors Scholarship
Dean's List (All Semesters)
National Merit

SOCIETIES

Tau Beta Pi

RESEARCH

VERIFICATION OF CYBER-PHYSICAL SYSTEMS | CMU CS 15-424

Carnegie Mellon University, Logical Systems Lab | Aug 2014 – Present
Research project spun out of course project on developing a verifiably safe and efficient controller for using multiple robotic arms in surgery, under the guidance of Dr. Andre Platzer at CMU.

- Placed 1st as an individual at CMU CPS Validation and Verification Grand PRIX

MOBILE CYBER-PHYSICAL SYSTEMS LAB | NSF REU Fellow

University of California, San Diego | May 2014 – Aug 2014
National Science Foundation's Research Experience for Undergraduates Fellowship led by Dr. Ryan Kastner, Dr. Curt Schurgers, and Dr. Albert Lin.

- Development of a Mobile Aerial Platform for Remote Tracking of Radio Collars by use of digital signal processing and software defined radio. Deployed by biologists in the Domincan Republic.
- Implementation of a Crowd-Sourced Machine Learning Framework for Classification of Plankton using support vector machines and a web app. Mobile iOS App in development.
- Work published in the 2014 IEEE International Conference on Mobile Ad hoc Sensor Systems

WIDE BANDGAP SEMICONDUCTORS LAB | Research Assistant

University of Pittsburgh | Jan 2013 – May 2014
Department of Physics, led by Dr. Wolfgang Choyke and Dr. Robert Devaty

- Optimization of SiC Di-Vacancy for use as QUBIT in Quantum Computing by use of Fourier Transform Infrared Spectroscopy
- Presented research at II-VI Conference

EXPERIENCE

DESIGNHUB | Co-Founder

University of Pittsburgh | Mar 2013 – Present
Developed university organization creating student teams to create innovative solutions, often with partnerships with physicians or industry.

- 14 student teams, 6 patents, 1 spun out company, infinitely valuable experience
- Finalists in H.G. Wells Competition and Randall Big Idea

OUTREACH

SEMFS | Co-President

Swanson School of Engineering | Jan 2014 – Present
Scientists, Engineers, and Mathematicians for Service provide STEM outreach to local K-12 students

- Organized and hosted Pitt Science Day 2014 with over 100 students, chronicled in the Pitt News

PITTSERVES | Director of Education Outreach

Student Affairs | Mar 2012 – May 2013
Oversaw and assisted all of University of Pittsburgh educational outreach organizations

PUBLICATIONS

Santos, Gilberto, Zachary Barnes , Ryan Kastner et al. "Small Unmanned Aerial Vehicle System for Wildlife Radio Collar Tracking." In Mobile Ad Hoc and Sensor Systems (MASS), 2014 IEEE 11th International Conference on, pp. 761-766. IEEE, 2014.