Marcus Jia-En Pan

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EDUCATION:

University of Pennsylvania, Philadelphia, PA

- Graduating in May 2016 with a Bachelor of Science in Engineering.
- Majoring in Electrical Engineering with minors in Computer Science and Math.
- Dean's List 2012-2015, Tau Beta Pi Honor Society, CGPA: 3.79/4.0

WORK EXPERIENCE:

Research Intern at the TerraSwarm Center: designed a software framework to connect a robotic system to an Internet of Things environment (May - July 2015)

- Awarded a SRC STARnet internship to work with Prof. Edward Lee at UC Berkeley.
- Contributed code to the Ptolemy project, a software framework for designing embedded systems. Researched and implemented a web socket architecture that connected Ptolemy to ROS, a software architecture for robotics.
- Designed the following demo scenario: A webcam localizes AprilTags (black and white tags with unique encodings) that are attached to smart lights controlled over a Wi-Fi network. The lights' coordinates are sent to a ground robot. The robot then plans a path to a light, and turns it on arrival. Video here: https://youtu.be/CeTlpnGroxY
- Presented research at the Ptolemy Miniconference in Oct 2015, Berkeley.

Student Researcher at the GRASP Lab, Penn: researched and implemented a signal processing embedded system for a directed audio application (June 2014 – Present)

- Selected to conduct research in the Summer Undergraduate Fellowship in Sensor Technologies REU, with Prof. Daniel Lee at Penn in June 2014. Continued research until present time.
- Designed a directed speaker that emits sound in a narrow beam. The speaker was to be installed on traffic lights, to guide visually-impaired pedestrians as they cross the street.
- Personal contribution: Implemented signal processing blocks for directional sound in MATLAB and on a microcontoller. Designed amplifier circuit to produce high volume sound that can be heard outdoors. Programmed a digital delay system on an FPGA to implement a phased speaker array that would shift the angle of the sound-beam electronically. Currently working on pedestrian detection using computer vision.
- Lead author for a paper presented at the Intelligent Transportation Systems Conference in June 2015, Pittsburgh:
  http://www.seas.upenn.edu/~mpanj/assets/pdf/DirectedAudioWarningSystem.pdf

TA for Embedded Systems Class, Penn: developed lab modules and managed lab sessions (Jan 2016 – Present)

- Researched new platform (ATmega 328) for class-use this semester and wrote tutorials on command-line development. Mentored students in embedded C programming and signal processing circuits.

PERSONAL:

- Programming languages and platforms: Advanced—C/C++, Java, MATLAB, JavaScript, Linux, ROS; Intermediate—Python, Verilog
- Recreational interests: running river trails, cooking, writing nonfiction, reading long novels