

# Vincent Pacelli

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## AT A GLANCE

Looking for an internship in robotics, embedded systems, or software development.

## EDUCATION

### UNIVERSITY OF PENNSYLVANIA

MASTER OF SCIENCE, ROBOTICS  
 Expected May 2017 | Cum. GPA: 4.0

BACHELOR OF SCIENCE, ELECTRICAL  
 ENGINEERING

Expected May 2016 | Cum. GPA: 3.34 |  
 STEM GPA: 3.37

## COURSE WORK

### COMP. SCI.

Algorithms and Data Structures II,  
 Operating Systems, Computer  
 Architecture, Theory of Embedded  
 Computation, Math. Foundations of  
 Comp. Sci

### ELECTRICAL ENGINEERING

Analog Circuits III, Digital Logic,  
 Embedded Systems

### SYSTEMS ENGINEERING

Control Theory, Linear Systems,  
 Dynamical Systems, Probability,  
 Stochastic Processes

## TECHNICAL SKILLS

C/C++ • Python • MATLAB •  $\text{\LaTeX}$  •  
 HTML/CSS/JS • C# • EagleCAD  
 • Linux/Unix • Java • AVR and ARM  
 microcontrollers

### Familiar:

Mathematica • Haskell • Audio  
 Electronics Design • Xilinx FPGAs • Swift  
 • Multisim

## TEACHING ASSISTANT

- Embedded Systems | Spring 2015
- Beginner Embedded Systems | Summer 2014
- Digital Logic | Spring 2014

## EXPERIENCE

### NASA LANGLEY RESEARCH CENTER | SAFETY-CRITICAL AVIONICS

Summer 2015

- Developed the Hermes Mission Planning System (detailed below) as part of a larger effort to develop a safety-verified Unmanned Air Vehicle (UAV) platform.
- Currently writing a formal white paper detailing the methods used in the project. Will be made publicly available on completion.

### SUNFEST REU | UNIVERSITY OF PENNSYLVANIA

Summer 2014

- Worked on the embedded software and data analysis tool suite for use with the NeoNur detailed below.
- Gained experience designing devices for non-technical end users.

## PROJECTS

### HERMES MISSION PLANNING SYSTEM

- Prototyped and developed decision making algorithms for application in autonomous UAVs.
- Characteristics of these algorithms include Bayesian methods, Parallelization, and meeting real-time constraints through Monte Carlo and Anytime Methods.
- Implemented on an ARM microcontroller running Real-Time Linux. Tested using Hardware-in-the-Loop techniques.

### NEONUR: PRACTICAL INFANT FEEDING CHARACTERISTICS

- A tool used by over a dozen hospitals internationally to research how infants develop oral motor skills.
- Worked on embedded software running on a PIC microcontroller to collect data and user-facing desktop software for data analysis.
- Refined design through feedback from the medical community.

### GAMBO: A PLATFORM INDEPENDENT GAMEBOY EMULATOR

Playable Demo: <http://pacel.li/gambo.html>

- Designed and built a GameBoy emulator as a hobby project to further understanding of computer architecture.
- Capable of running as a desktop application or in a web browser via Google Web Toolkit
- Written in Java and engineered to minimize platform dependent code. Only minor changes were needed to add support for the web target. Adding other platforms would require a similar amount of modification.

### SMART BLOCKS

- Developed embedded software and electronics prototypes for low-cost, context-aware building blocks with emphasis placed on user experience.
- The structure built by the user is made available to other objects in a smart living room setting, allowing for these objects to respond to user creations.
- Software written in C++ for AVR microcontrollers. PCBs were designed in EagleCAD.