

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 | 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 • \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

WORK EXPERIENCE

NASA LANGLEY RESEARCH CENTER | SAFETY-CRITICAL AVIONICS

Summer 2015

- Developed mission planner (detailed below) as part of a larger effort to create a safety-verified Unmanned Air Vehicle (UAV) platform.
- Currently writing a 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

AUTONOMOUS MISSION PLANNER

- Prototyped and developed decision making algorithms for application in autonomous UAVs.
- Leveraged Bayesian methods, parallel computing, and any-time computation techniques to improve efficiency and meet real-time constraints.
- 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.
- Developed 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.

SMART BLOCKS

- Developed embedded software and electronics prototypes for low-cost, context-aware building blocks with emphasis placed on user experience.
- The intelligent building base is aware of the structure assembled on it. Other smart living room devices are made aware of this structure to provide further interaction.
- Software written in C++ for AVR microcontrollers. PCBs were designed in EagleCAD.

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.