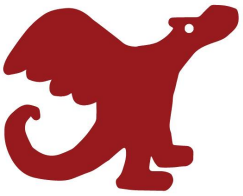

Joey Fernau

Computer Scientist

Carnegie Mellon University, Class of 2017

Objective To obtain a Summer 2016 internship to utilize my strong programming abilities, problem solving, and relevant experience in computer science.

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Education

Carnegie Mellon University, Pittsburgh, PA
B.S. Computer Science, May 2017
Minors in Computer Engineering, Mathematics
GPA: 3.52

Experience

Intern at Advanced Chip Test Laboratory (Atari 7800 Project): Summer 2015

- Worked with the Atari 7800 to implement **3D graphics** on 1986 computer with 4KB RAM and 48KB ROM by using **projective geometry** techniques.
- Dealt with arithmetic larger than word size of one byte by **implementing libraries** in 7800basic and in-line 6502 **assembly**.
- Worked around bugs that were in the 7800basic compiler itself.
- Under supervision of two ECE faculty.

Research Project with HERB in Robotics Institute: Spring 2015

- **Motion task planning** for HERB the robot.
- Utilized **decision trees** to model planning.
- Dealt with large amounts of code that control HERB's planning.
- Composed small individual tasks into more complex tasks that the robot frequently uses.

Scheduling Application at TartanHacks: Spring 2015

- Participated in CMU hackathon to design a scheduling application with 3 others.
- Tracked a student's classes to deal with prerequisites and determine future courses.
- Used Beautiful Soup (a web scraper) to extract HTML and XML code in order to retrieve the required information.

Class Project using Raycasting: Fall 2013

- Implemented **raycasting** in Python to simulate a 3D world using 2D shapes.
- Finished product is a retro first person shooter game in 2.5 dimensions.

Teaching Assistant: Spring 2015 - Fall 2015

Led recitations, held office hours, graded, monitored online discussion forum, facilitated students in lab, created **autograders** for programming assignments.

- CS-15110 Principles of Computing: Summer and Fall 2015
- CS-15112 Fundamentals of Programming and CS: Summer 2015
- ECE-18240 Structure and Design of Digital Systems: Spring 2015

Skills

Coursework

- Compiler Design
- Algorithm Design
- Machine Learning
- Software Design
- Game Design
- Parallel Programming
- Digital System Design
- Embedded Systems
- Probability Theory
- Graph Theory
- Matrix Theory
- Algebraic Structures

Tools

Unity, Torque Game Engine, GDB, Bash, Vim, LaTex, Git, Subversion

Languages

C, Python, OCaml, Standard ML, 7800basic (BASIC), SystemVerilog, HTML/CSS, SQL, x86-64, ARM, 6502, IA32

Related Activities

School of Computer Science Day Student Planning Committee: Fall 2014 - present

Planned CMU's School of computer science day of celebration, which includes a talent show, an art gallery, and workshops led by volunteering faculty involving possibly non-technical interests.

Putnam Math Contest: Fall 2014

Annual math competition that tests all around math ability.

Hackathons

Build18 (Spring 2014), TartanHacks (Spring 2015).