Natasha "Tasha" Arvanitis tasha.arvanitis@gmail.com

Who I am

The adventure inherent in learning and problem solving has always been one of my greatest joys. In particular, I am fascinated by the idea of leveraging modern computational and analytical methods to solve real-world and business problems.

Education

Harvey Mudd College, Claremont, CA
Graduating: May 2015 Current GPA: 3.9 / 4.0
Major: B.S., Physics Major GPA: 3.8 / 4.0

Illinois Math and Science Academy (IMSA)
Graduated: June 2011 GPA: 4.0 / 4.0

Skills/Coursework

Computer Science: Principles and Practice of Computer Science, Data Structures and Program Development, Computability and Logic, Introduction to Algorithms
Physics: Intro to Mechanics, Electromagnetic Theory and Optics, Theoretical Mechanics, Quantum Physics, Quantum Mechanics, Intro to Astrophysics (audit), Statistical Mechanics, Electronics, Optics
Experienced with: Python, Haskell, C++, LaTeX, SQL

Work Experience

Yelp: Software Engineer Summer 2014

- Collaborated with the spam team to limit user-generated content spam
- Designed and developed an administrative page to examine connections between businesses and evaluate whether groups of businesses engage in questionable behavior.

Fermilab: Employing over a thousand scientists and with an annual budget exceeding $250 million, Fermilab is one of the leading high-energy physics laboratories in the world and serves as a hub for international collaborations, including Muon g-2, a high-precision intensity frontier experiment.

Simulations Engineer Summer 2013

- Conceptualized an end-to-end simulation of the Muon g-2 experiment's novel tracking detectors to evaluate their plausibility for the experiment

Software Engineer Summer 2011-2012

- Designed and implemented a new highly modular framework in C++ for the Muon g-2 experiment, which was used by the collaboration's simulation effort starting October 2012
- Research presented at 20th International Conference on Computing in High Energy and Nuclear Physics in October 2013

Hardware Analyst 2010-2011

- Evaluated a novel muon detector, determined its suitability for larger-scale use in the final Muon g-2 experiment

Extracurricular Projects

Fluid Simulation

- Created a smoothed particle hydrodynamics simulation in Go, and implemented marching cubes visualization for OpenGL
- Currently implementing a grid-based fluid simulation in Haskell, and parallelizing visualization and computation using OpenCL

Swarm Behavior

- Explore emergence of coordinated behavior from simple rules through simulation of cellular automaton "fireflies"

Clustering

- Research and implement several clustering algorithms for two-dimensional data sets

Activities

Claremont Greenshirts, Ultimate Frisbee
D-III National Champions (2012) 2011-14
Captain and coach (2012-14)

Academic Excellence Physics Tutor 2013-14
Guide discussions and lead review sessions for all core physics classes

Ultimate Team USA Summer 2012
Member of Junior Women's Team USA at the World Junior Ultimate Championships
Silver medalists

Physics Grader, HMC Physics Department 2012