Lennart Rudolph

Contact Information

lrudolph@hmc.edu https://lrudolph1.github.io/

Education

Georgia Institute of Technology, Atlanta, GA **Expected 2019**
M.S. Computer Science

Harvey Mudd College, Claremont, CA **Sept. 2012 - May 2016**
B.S. Physics
- Concentration in Physics with Computers
- Senior Capstone: *Atomistic Simulations of White Dwarf Dynamics*

Relevant Coursework (click for descriptions)

Computer Science: Artificial Intelligence for Robotics (in progress), Computational Photography, Algorithms, Data Structures and Program Development, High-Performance Computing, Computability and Logic, Compilers and Languages, Operating System Concepts, Software Engineering
Physics: Computational Methods in Physics, Statistical Mechanics & Thermodynamics
Mathematics: Discrete Mathematics, Intermediate Probability, Differential Equations & Linear Algebra II, Fourier Series & Boundary Value Problems, Single & Multivariable Calculus, and Probability & Statistics

Skills

Most experience: Go, Python, Google App Engine
Some experience: `C++`, `C`, git, Docker, Kubernetes, Google Container Engine, Google Cloud Datastore, NumPy, OpenCV, LaTeX, Java, Mathematica
Exposure to: Google Cloud Pub/Sub, Google Cloud SQL, Prolog, Racket/Scheme, subversion, GNU make, CUDA, MPI, OpenMP, `MATLAB`, SolidWorks

Project Experience

Atomistic Simulations of White Dwarf Dynamics (LLNL) **Sept. 2015 - May 2016**
- Worked on a white dwarf project for the Lawrence Livermore National Laboratory's (LLNL) High Performance Computing Innovation Center as a member of a joint computer science-physics clinic team
- Ran molecular dynamics simulations on the Vulcan Blue Gene Q supercomputer using LLNL's dynamic domain decomposition multi-physics particle dynamics code (ddcMD)

Wormhole Simulation (HMC) **Apr. 2015 - May 2015**
- Used Mathematica and concepts from general relativity to implement a ray-traced interpolation map for the light from a wormhole (see my GitHub for the code and examples)

Work Experience

API Developer (BigNerve) **May 2016 - present**
- I write and maintain Golang code for BigNerve's DailyNerve backend web API. I implemented Twitter Single Sign-On and integrated various features of the Twitter API into the platform. I enabled pagination of certain JSON responses by using Google's query cursors. I ported the existing Go codebase from the standard GAE environment to the flexible GAE environment and deployed it on Google Container engine.

API Developer Intern (BigNerve) **May 2015 - Dec. 2015**
- I worked on the backend web API for BigNerve's DailyNerve website as a part-time intern and focused on integrating PayPal Express Checkout with the existing codebase by beginning my own implementation in Go

Assistant to System Administrator (HMC) **May 2015 - Aug. 2015**
- Created new disk images for over sixty engineering department computers and installed solid state drives into these machines; wrote and edited batch scripts to optimize tasks
- Occasionally assisted the college's Computer Information Services department with help-desk support tickets

Other Experience

Physics Research Student **Jan. 2014 - May 2014**
- Used SolidWorks and Mathematica to model and simulate magnetic fields in a vacuum chamber

Physics Grader (HMC) **Jan. 2014 - May 2014**
- Graded homework for a section of Mechanics & Wave Motion

Homework Hotline Tutor (HMC) **Sept. 2012 - May 2013**
- Tutored student callers in mathematics and science from the elementary school level to the AP level

Other Coursework (click for descriptions)

Physics: General Relativity & Cosmology, Electromagnetic Fields, Quantum Mechanics, Theoretical Mechanics, Quantum Physics, Electromagnetic Theory & Optics, Mechanics & Wave Motion, Gravitation, Special Relativity, Optics Lab, Electronics Lab, Modern Physics Lab, Physics Lab