

Adrian S. Wong

✉ adrianskw@gmail.com • 📄 adrianskw.github.io

Education

University of California, San Diego:

- PhD, *Physics with specialization in Computational Science* Sept 2015 — Current
- BS, *Physics with specialization in Computational Physics* Sept 2010 — June 2014

Research Experience

University of California, San Diego:

- Graduate Researcher - Physics Department, Abarbanel Group* Sept 2017 — Current
- [Precision Annealing Monte Carlo](#) - Proposed and developed novel methods for data assimilation of chaotic systems that aim to overcome memory limitations. Paper pending; [manuscript](#) submitted to the journal [NPG](#)
 - Biologically Realistic Machine Learning - attempting to perform simple image classification using a realistic olfactory system as the architecture of a Spiking Neural Network (C++/Python)

Lawrence Livermore National Laboratory:

- High Energy Physics Intern ([Iterative Implicit Monte Carlo](#))* June 2017 — Sept 2017
- Parallelized a research-level radiation transport code that uses Monte Carlo simulations (C++/MPI)

Computation Intern ([EOS and Materials Theory Group](#)) June 2016 — Sept 2016

 - Proposed and developed a convexity-enforcing algorithm to repair 'un-physical' regions of data (Python/C++)
 - Contributed to an open-sourced polynomial fit library by adding options for different numerical-derivatives (C++)

San Diego Supercomputer Center:

- High Performance Computing Intern ([HPGeoC Group](#))* March 2017 — June 2017
- Arranged data structures for a peta-FLOP Finite Difference code, targeting the Intel Xeon Phi architecture
 - Strongly enforced data locality such that cache-misses are minimal (C++/OpenMP)

Other Experience

University of California, San Diego:

- Lead Teaching Assistant (Physics Dept, Math Dept)* Sept 2015 — Present
- Organizing lecture classes' structure, writing exams, and overseeing (up to 8) junior teaching assistants
 - Develop strategies with lecturers that help maximize the students learning potential

Cambridge Learning Center

- Tutor and Assistant Manager* Oct 2014 – Sept 2015
- Tutored at an after-school program for K-through-12 and helped students develop good learning habits
 - Made sure that all tutors had a balanced workload, and that their students are staying on task

Class Projects

EM Modes in Waveguides (MATLAB):

 June 2016

- Implemented both Finite Element and Finite Difference methods to solve Maxwell's Equations in 2D
- Calculated TE & TM modes numerically to determine and validate their respective cutoff frequencies

Inverted Pendulum with Oscillating Pivot (MATLAB):

 March 2016

- Modelled an idealized pendulum and designed numerical experiments to find the transition points
- Investigated/characterized the bifurcations and phase-portraits of the inverted oscillation modes

Monte-Carlo Simulation of Non-Ideal Gases (Team, C/C++, OpenACC):

 June 2014

- Simulated and characterized the steady-state distributions of a fluid using Monte Carlo Markov Chains

Simulation of the Mice Galaxies' Collision (Team, C/C++, OpenACC):

 March 2014

- Wrote and parallelized our own n-body integrator for gravity with softening parameter to run our simulations

Technical Skills

- Familiarity with UNIX environment, makefiles, C/C++ practices, git repositories, and test scripts
- Primary Languages: C/C++, MATLAB, Python, Mathematica
- Other Technologies: CUDA, OpenACC, OpenMP, MPI