

## Summary

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- Extensive experience in particle physics simulation code and handling/processing large amounts of simulated data.
- Proficient in large-scale data analysis and algorithm software development with 8 years of experience.
- Innovative problem solving skills with the ability to interface original work with larger collaboration.

## Experience

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**Post-doctoral Researcher, UC Berkeley** **June 2018 — Present**

- Supervisor for simulation/modeling of photon interactions with optical wavelength shifters.
- Data analysis lead for energy spectrum of radioactive isotope  $\alpha$  decays.

**Post-doctoral Researcher, UCLA** **2016 — 2018**

- Mentor for 2 PhD students to simulate radiation shielding structures to mitigate gamma/beta backgrounds for next generation neutrinoless double beta decay searches requiring ultra-low radiation environments.
- Lead developer of precision alpha decay spectrum model to improve characterization of backgrounds in neutrinoless double beta decay searches.

**Research Assistant, University of Hawaii at Manoa** **2009 — 2016**

- Spearheaded development of a novel directional neutrino detection technology in scintillator and demonstrated with data for the first time that this can be applied to conduct indirect dark matter searches in scintillator. First ever physics application of neutrino directionality in scintillator.
- Lead developer of detector simulation code to conducted case studies of neutron capture doping agents in solid scintillator. Simulation results were later used to oversee detector design and construction.

## Skills

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Software/Tools:	ROOT, SolidWorks, AutoCAD, ComSol, Pads, Git, Geant4
Programming Languages:	Proficient in Python, BASH, C, C++, Mathematica, Matlab; Some experience with R
Human Languages:	English (native), Japanese/Korean (trilingual proficiency)

## Leadership

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**Mentor, UC Berkeley, UCLA** **March 2016 — Present**

- Advised 2 students with optical simulation code for current hardware project. Students are now undertaking independent research tasks and contributing original work.
- Taught weekly Geant4 physics simulation tutorials to 3 PhD-level students for a semester. Students successfully learned to take on independent projects.

**Teaching Assistant, University of Hawaii at Manoa** **2007 — 2009**

- Planned coursework and taught 2 weekly physics laboratory curriculum for classes of over 20 students each for 3 semesters. Received especially positive reviews for clarity of explanation of material, and teaching style.

## Education

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**PhD, Experimental Particle Physics** **2016**

- GPA: 3.97/4.00, University of Hawaii at Manoa
- Dissertation: High Energy Neutrino Analysis at KamLAND and Application to Dark Matter Search

**Double BS, Physics and Mathematics** **2005**

- GPA: 4.33/4.50, Sun Moon University, S. Korea
- President's Award 2005, Award for Outstanding Academic Achievement – Samsung Corp.