Kai Klocke

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EXPERIENCE

Teaching Assistant Sept 2016
California Institute of Technology
- BE/Bi/NB 203 - Introduction to Programming for the Biological Sciences

Ph11 Fellow May 2016 - Present
California Institute of Technology
- Designed a testing procedure for silicon photomultipliers in search of modes of electronic failure as part of the DUNE collaboration.
- Automated control, data acquisition, and analysis in LabVIEW.
- Identified a pattern of failure in the preliminary testing phase.

Research Intern May 2013 - Sept 2015
Oregon Health and Science University
- Designed and implemented a novel computational approach for the calculation of internal volumes for parvovirus capsids (publication pending).
- Investigated packaging capacity of AAV vectors with capsid modifications selected based on computational analysis.
- Synthesized novel AAV vectors and evaluated their tissue target specificity and transduction efficiency.
- Wrote Perl scripts to analyze data and expedite research for members of the Nakai group.
- Trained interns and graduate students in wet lab and computational techniques.
- Organized several projects and directed the efforts of several interns working under me on these projects.

EDUCATION

California Institute of Technology Sept 2015 - Jun 2019 (expected)
- B.S. Computer Science, Physics
- GPA: 3.9

COURSES

Computer Science: Introduction to Computer Programming, Data Structures and Algorithms, Algorithm Design and Analysis, Decidability and Tractability, Learning Systems, Introduction to Computing Systems.

Math/Applied Math: Multivariable Calculus, Linear Algebra, Differential Equations, Statistics, Discrete Math, Complex Analysis and Ordinary Differential Equations.

Physics: Waves, Statistical Mechanics, Quantum Mechanics, Computational Physics Lab.

SKILLS

Programming: Python, C, C++, LabVIEW, Perl, git, Linux

Additional: PyMOL, LaTeX, Mathematica, biology wet lab techniques, leadership, public speaking

OTHER

Awards: Ph 11 Research Fellow, CS 1 Honor Roll Champion, National Merit Scholar.

Interests: Particle and theoretical physics, computational modeling of dynamic systems, data analysis, machine learning, computational biology, protein structure, and viral gene therapy.