

# Daniel W Hogan

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<https://dhogan.io/>

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## EDUCATION

**PH.D., APPLIED PHYSICS** STANFORD UNIVERSITY  
 2020 | Stanford, CA

**B.S., PHYSICS, WITH HONOR** CALIFORNIA INSTITUTE OF TECHNOLOGY  
 2013 | Pasadena, CA

## EXPERIENCE

**GRADUATE RESEARCH** DEVELOPMENT OF SINGLE-MOLECULE TECHNIQUES AND THEIR APPLICATION TO BIOPHYSICAL QUESTIONS  
 2013-2020 | Advised by Prof. Steven Block

- Monte Carlo simulation of intraflagellar transport
- Characterized RNAP clamp dynamics and the TPP riboswitch using optical tweezers and fluorescence
- Developed of data analysis pipelines

**UNDERGRADUATE RESEARCH** HIGH-PRECISION PHOTOACOUSTIC SPECTROSCOPY AND FREQUENCY-STABILIZED CAVITY RINGDOWN SPECTROSCOPY  
 2011-2013 | Advised by Prof. Mitchio Okumura

- Collected data to support NASA's Orbiting Carbon Observatory mission

**COMPUTER SYSTEMS ADMINISTRATION INTERNSHIP** UNIVERSITY OF UTAH CENTER FOR HIGH PERFORMANCE COMPUTING  
 2010

- Supported scientific computing and maintained infrastructure

**TEACHING AND CURRICULUM DEVELOPMENT** CALTECH AND STANFORD  
 2010-2019 | 14 terms

- Stanford: Advanced Imaging Lab in Biophysics, Science as a Creative Process, and The Science of MythBusters
- Caltech: Physics Laboratory (Electromagnetic Phenomena) and Advanced Physics Laboratory

## SKILLS

### COMPUTER SCIENCE AND SYSTEMS ADMINISTRATION

- Python, with in-depth knowledge of numpy, matplotlib, and scipy (>5 years)
- Experience with machine learning and advanced statistical analysis techniques, including Monte Carlo methods, hidden Markov models, and clustering
- Administration of Linux systems and web services (>10 years)
- Proficiency with GNU coreutils, git, and  $\LaTeX$
- Development for Arduino and ESP32 microcontrollers

### BIOLOGY

- Proficient with molecular biology web lab techniques

### RELEVANT COURSEWORK

- Methods in Computational Biology
- Advanced Numerical Methods for Data Analysis and Simulation
- Programming for Scientists and Engineers
- Computational Biology in Four Dimensions
- Genomics