Newton Huy Nguyen
153 S. Chester AVE, APT #2 • Pasadena, CA 91106 • 408-613-4379 • newton@caltech.edu

EDUCATION

California Institute of Technology (Caltech) **Pasadena, CA** **2017 – Present**

- PhD Candidate in Environmental Engineering Science: Algorithms and Techniques to Optimize Sensing of Greenhouse Gases
- Master of Science (2019) in Environmental Engineering Science: Quantifying Global Methane Emissions with Bayesian Models

University of California at Berkeley **Berkeley, CA** **2012 – 2016**

- Bachelor of Arts in Geophysics, Highest Honors: Neural Networks to Model Fluid Flows

TECHNICAL PROJECTS

SpectralFits.jl **Julia and Python** **Jun 2020 – Present**

- Designed a flexible interface where any molecule concentration can be inferred and instrument can be simulated
- Implemented Bayesian inversion algorithm with capabilities to infer statistical measures, e.g., Shannon Information content, Degrees of Freedom, Posterior Error Covariance
- Resulted in 2 invited talks and 1 peer-reviewed paper

OHMethane **MATLAB** **Jan 2018 – Dec 2018**

- Developed MATLAB model to simulate atmospheric methane chemistry and infer global emissions given chemical constraints
- Implemented a Bayesian algorithm to infer methane, carbon monoxide, and emissions of other species affecting Earth's climate
- Resulted in 2 conference presentations and 2 peer-reviewed publications

EMPLOYMENT EXPERIENCE

PhD Student Research Assistant at Caltech **Pasadena, CA** **Sep 2017 – Present**

- Designed four research areas on quantifying and monitoring methane emissions, which integrated advances in physical chemistry, instrument engineering, and statistical computing
- Authored and was rewarded a fellowship by the National Science Foundation to modernize methane monitoring capabilities
- Taught and led students in recitation sections for graduate-level satellite Remote Sensing and Biogeochemistry courses (teaching effectiveness 4.9/5.0)
- Mentored 2 students and 1 software engineer in developing skills in satellite remote sensing

Research Assistant, Lawrence Berkeley National Laboratory **Berkeley, CA** **June 2016 – July 2017**

- Analyzed NASA satellite data in order to study the sensitivity of Earth's climate to carbon emissions
- Parallelized a numerical radiative transfer model to run on NASA's Pleiades Supercomputer
- Resulted in 2 peer-reviewed publications and an award for best conference presentation

LEADERSHIP AND SERVICE

Caltech Graduate Admissions Policy Committee **Pasadena, CA** **Sep 2020 – Mar 2021**

- Selected by the President of Caltech to be student representative for the faculty committee tasked with increasing student body diversity by rewriting graduate admissions policies
- Analyzed past admissions data and policies from other institutions to discern features and policies that increased student diversity
- Proposed three new policies to make admissions less biased, which were implemented by the university

President, Caltech Triathlon Club **Pasadena, CA** **Sep 2019 – Present**

- Coached track and biking practices for more than 20 athletes
- Organized and coordinated 3 virtual triathlons during COVID with UCLA and USC teams, which involved about 100 participants

Cofounder, Systemic Access Mentorship Program **Pasadena, CA** **Aug 2020 – Present**

- Organized and coordinated a national mentorship program so that blind students in science and engineering have role models and resources to succeed
- Matched 40 mentors and mentees across the US and 2 other countries

TECHNICAL EXPERTISE

• Numerical computing • Probability • Bayesian statistics • High-performance computing • Greenhouse gas emissions • Remote sensing • Satellite spectroscopy • Machine learning

TECHNICAL SKILLS

• Python • Julia • MATLAB • Fortran • Git • Bash • Numpy/Scipy • SKLearn/PyTorch

AWARDS AND RECOGNITIONS

• Caltech Engineering Division New Horizons Prize for Excellence in Mentorship and Service (2021) • National Science Graduate Research Fellowship for Scientific Merit (2018) • Boston Marathon Qualifier (2019) • 3rd Place, US Blind Athletes National Championships in the Marathon (2019) • 1st Place Collegiate Triathlon National Championships in Para-athlete Division (2015 and 2016)