

# Benjamin Adam **Catching**

GRADUATE STUDENT

1425 Fillmore Street, Apartment 612, San Francisco, CA 94103

☎ 1(707)331-9550 | ✉ Benjamin.Catching@ucsf.edu

## Education

---

### University of California, San Francisco

PH.D CANDIDATE IN BIOPHYSICS, ANDINO LAB

San Francisco, California

September 2017 - Present

### California State University, Chico

B.S. IN PHYSICS, MINOR IN MATHEMATICS

Chico, California

August 2011 - May 2016

## Publications

---

### Experimental and mathematical insights on the interactions between poliovirus and a defective interfering genome.

BioRxiv on January 11th, 2021

PLOS PATHOGENS, IN REVIEW

<https://doi.org/10.1101/2021.01.11.426198>

- Collected negative stain EM images of virus particles.

### Examining face-mask usage as an effective strategy to control COVID-19 spread.

MedRxiv on August 14th, 2020

SCIENTIFIC REPORTS, IN REVIEW

<https://doi.org/10.1101/2020.08.12.20173047>

- Co-first author. Designed, ran, and analyzed simulation data for pandemic conditions with difference levels of adherence to face-masks and social distancing.

### Mapping Attenuation Determinants in Enterovirus-D68.

Published August 8th, 2020

VIRUSES, VOLUME 12, ISSUE 8

<https://doi.org/10.3390/v12080867>

- Helped with data analysis and helped set up of simulation for virus mutants.

### Robust Sequence Determinants of $\alpha$ -Synuclein Toxicity in Yeast Implicate Membrane Binding .

Published July 27th, 2020

ACS CHEMICAL BIOLOGY, VOLUME 15, ISSUE 8

<https://doi.org/10.1021/acscchembio.0c00339>

- Ran mutational and chemical perturbations against protein in question in Yeast two hybrids.

### A Type IV-A CRISPR-Cas system in *Pseudomonas aeruginosa* mediates RNA-guided plasmid interference *in vivo*.

Published December 2019

THE CRISPR JOURNAL, VOLUME 2, ISSUE 6

<https://doi.org/10.1089/crispr.2019.0048>

- Developed bioinformatic pipeline to analysis putative CRISPR type IV systems while rotating in the lab of Dr. Bondy-Denomy of UCSF

### Human Phageprints: A high-resolution exploration of oral phages reveals globally-distributed phage families with individual-specific and temporally-stable community compositions

Deposited in Jan. 2019

*bioRxiv*

<https://www.biorxiv.org/content/10.1101/516864v1>

- Collected, isolated, and prepared oral genomic samples from human subjects as a lab tech in the lab of Dr. Phillips of Caltech

## Magnetic Viscous Drag for Friction Labs

Published Sep. 2016

THE PHYSICS TEACHER, VOL. 54

<https://aapt.scitation.org/doi/10.1119/1.4961172>

- Research with Dr. Gaffney of CSU Chico on magnet sliding down non-ferric conducting slab as a friction lab

## Performance of Metal-Coated Mirrors with Different Protective Dielectric Layers, Part 1: Experiment

Presented Apr. 2014

CSU CHICO COLLEGE OF NATURAL SCIENCES POSTER SESSION

- Comparison of coating and metal's effect on polarization from rotation of azimuthal and elevation mirrors with Dr. Petrova-Mayor of CSU Chico

## Addressing Students' Difficulties in Charging by Induction: Creation of Experimental Videos

Presented Aug. 2013

AAPT SUMMER MEETING POSTER SESSION

- Investigated effects of video demonstration as a learning device for teaching electromagnetic induction with Dr. Zou of CSU Chico

## Experience

---

### California Institute of Technology

Pasadena, California

LAB TECHNICIAN IN THE PHILLIPS GROUP

Aug. 2016 - Aug. 2017

- Assist in oral sample collection, preparation, and analysis pertaining to a 100 day experiment
- Head Teaching Assistant for the Spring 2017 class: Bi 1X, Great Ideas of Biology

### Marine Biological Laboratory

Woods Hole, Massachusetts

PHYSICAL BIOLOGY OF THE CELL COURSE ASSISTANT

Sep. 2016 - October 2016

- Set up course, ensured all materials and apparatus arrived or were procured on time
- Coordinated course events and transitions
- Student in course, worked with Greg Huber of KITP (now Chan Zuckerberg Biohub) on membrane physics of archaeal virus capsids

### Marine Biological Laboratory

Woods Hole, Massachusetts

PHYSIOLOGY COURSE ASSISTANT

Summers of 2014, 2015, and 2016

- Organized and optimized lab space and equipment
- Took part of course classes and attended all course lectures

### California State University, Chico, Physics Department

Chico, California

TEACHER'S ASSISTANT

Aug. 2013 - May 2016

- Assisted Dr. Ayars, Dr. Gaffney, Dr. Arpin, Dr. Anderson
- Graded papers, assisted in lab, proctored tests

### California State University, Chico, Physics Department

Chico, California

STOCKROOM ASSISTANT

Aug. 2012 - Dec. 2013

- Set up lower-division labs under Mrs. Mary Waldorf

## Extracurricular Activity

---

## Graduate and Professional Student Association

San Francisco, California

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

- External Vice President September 2018 - May 2020
  - Graduate Division Representative
  - Member of the University of California Graduate and Professional Council
  - Member of University of California President Student Advisory Committee
- President May 2020 - Present
  - President of the UCSF student body
  - Member of the University of California Council of Presidents, led items at quarterly meeting with UC President
  - Student representative of UCSF Alumni Association
  - Member of Student Service Fee Advisory Committee
  - Student representative on Suicide Prevention Advisory Group
  - Collaborated with UCSF Office of Community and Government Relations for student advocacy

## Associated Students of the Graduate Division

San Francisco

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

- Student Affairs Officer September 2018 - May 2019
  - Determine the state of graduate student affairs through attendance of outside student meetings

## Science and Health Education Partnership

San Francisco

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

- Classroom Partnership Volunteer March to April 2018
  - Created and implemented a four day physics lesson plan for two classrooms at Balboa High School, San Francisco, Ca

## Society of Physics Students

Chico, California

CALIFORNIA STATE UNIVERSITY, CHICO CHAPTER

Member from 2011 to 2016

- President Aug. 2015 - May 2016
  - Chapter won Marsh White Outreach Award
  - Oversaw successful 28th Annual Pumpkin Drop
  - Catalyzed First CSU Chico, College of Natural Sciences, Science Day
  - Oversaw Second Annual SPS Pi Day
  - Coordinated tutoring schedule
  - Organized student participation in selection of new department physics professors
- Executive Vice President Aug. 2013 - May 2014
  - Assisted President
  - Helped with Pumpkin Drop
- Vice President of Communications Aug. 2012 - May 2013
  - Maintained website, took meeting notes

## ΑΣΦ Fraternity

Chico, California

ΕΨ CHAPTER

Initiated Nov. 2012

- Housing Director Jan. 2014 - May 2014
  - Liaison between house occupants and landlord
  - Responsible for maintenance and bill payment
- Philanthropy Director Jan. 2013 - May 2013
  - Attended Ralph F. Burns Leadership Institute
  - Planned and executed "Donuts for Dogs" weeklong fundraiser for Canine Companions for Independence

## California State University, Chico Interfraternity Council

Chico, California

NATIONAL INTERFRATERNITY CONFERENCE MEMBER

Board Member from Aug. 2014 to May

2015

- President Aug. 2014 - May 2015
  - Presided as chair of executive council
  - Facilitated weekly meetings between Executive Council and Chapter Presidents Council
  - Guided reformation of Bylaws and Constitution
  - Became nationally recognized through NIC
  - Oversaw first IFC recruitment week
  - Participated in Chico NIC leadership retreat
  - Dealt with Theta Chi Fraternity disaffiliating from IFC

## Honors & Awards

---

2016 **Recipient**, Outstanding Student Leader Award

*CSU Chico, College  
of Natural Sciences*

2015 **Recipient**, Archon Award

*CSU Chico, Greek  
Life Office*