

# Augustine Chemparathy

agchempa@stanford.edu web.stanford.edu/~agchempa

## EDUCATION

---

**Stanford University**, Stanford, CA

Sep 2015-Present

- B.S. with Distinction, Computer Science and Bioengineering, GPA: 4.067/4.00, Phi Beta Kappa
- M.S. candidate, Management Science & Engineering, Health Systems Modeling and Policy track
- Relevant coursework: Machine Learning (CS 229); Healthcare Operations Management (MS&E 263); Health Policy Modeling (MS&E 292); Deep Learning (CS 230)

## EXPERIENCE

---

**Software Experience:** Python, Matlab, Tableau, Javascript, React.js

**Qi Lab, Stanford Bioengineering, Computational Biology Research Assistant** September 2019-Present

- Used bioinformatic tools to search bacterial and archaeal genomes for novel DNA-cutting enzymes. These enzymes can provide an alternative to CRISPR-Cas for use in gene therapies.
- Developed a bioinformatic method to target a broad spectrum of RNA viruses with a minimal set of Cas13d guides. Created the website [crispr-pacman.stanford.edu](http://crispr-pacman.stanford.edu) using the MERN stack to make antiviral guide sets available to the research community.
- **Publications:**
  - “Development of CRISPR as a prophylactic strategy to combat novel coronavirus and influenza” *Cell* (2020).
  - “Computational Methods for Analysis of Large-Scale CRISPR Screens”. *Annual Review of Biomedical Data Science*, Volume 3 (2020).
  - “A comprehensive analysis and resource to use CRISPR-Cas13 for broad-spectrum targeting of RNA viruses” (2020). In review.
  - “In vivo multiplexed gene activation via improved Cas12a” (2021). In review.

**CLABSI Data Analysis Team**, Stanford Children’s Hospital

March 2018-Present

- Designed and evaluated a electronic health record dashboard at Stanford Lucile Packard Children’s Hospital to increase adherence to the central line-associated bloodstream infection (CLABSI) prevention bundle. In the 15 months after the dashboard was deployed, adherence to the entire CLABSI bundle across the hospital increased from 25% to 44%.
- **Publications:**
  - “Development and implementation of a real-time bundle compliance dashboard for central line associated bloodstream infections.” Upcoming publication in *Pediatric Quality and Safety*

**Dror Lab, Stanford Computer Science, Computational Biology Intern**

June 2017-January 2020

- Developed a data analysis tool to gather insights from noncovalent interaction data from molecular dynamics (MD) simulations. Available at [getcontacts.github.io](https://github.com/getcontacts).
- Optimized ComBind, a software package for ranking ligand docking poses. Used ligands that do not bind to an enzyme in order to improve pose ranking for ligands that bind to the enzyme.
- **Publications:**
  - “Leveraging non-structural data to predict structures of protein-ligand complexes” (2020). In review.
  - “Uncovering patterns of atomic interactions in static and dynamic structures of proteins” (2019). In review. Available as BioArXiv pre-print.

**Arbor Biotechnologies, SWE Intern**

June 2019-September 2019

- Identified novel CRISPR/Cas proteins using Arbor's metagenomic database. Developed a machine learning model to predict which computational hits were most likely to function as biologically active CRISPR effectors.

**ACTIVITIES**

---

**Volunteer Organizer**

July 2018-Present

I organize Stanford students to cook and serve breakfast at the Palo Alto Opportunity Center, a transitional shelter for the homeless in the Palo Alto community.

**Co-President, Stanford Students in Biodesign (SSB)**

May 2017-June 2019

Coordinate recruitment, activities, and club organization for Stanford's largest undergraduate organization for interdisciplinary biosciences.

**Writing Tutor, Stanford Hume Center for Writing And Speaking**

Sept 2016-June 2019

Assist undergraduate and graduate students at Stanford with all stages of the writing process for conference publications, theses, term papers, applications, and other academic writing pieces.

**Teaching Assistant, Linear Dynamical Systems (EE 263), Stanford University**

Sept 2017-Dec 2017

Held office hours, wrote midterm problems, and graded exams for 135 students in Stanford's highest-enrollment electrical engineering course.

**HONORS AND AWARDS**

---

- |   |      |
|---|------|
| • Phi Beta Kappa  | 2019 |
| • Frederick E. Terman Scholastic Award, awarded to Top 30 seniors of Stanford Engineering | 2019 |
| • President's Award for Academic Excellence, Top 5% of Stanford Class of 2019 by GPA      | 2017 |
| • Intel Science Talent Search Finalist  | 2015 |
| • Davidson Fellow for Science   | 2015 |
| • US National Chemistry Olympiad High Honors (Top 50)                                     | 2015 |
| • USA Biology Olympiad National Certificate of Achievement (Top 56)                       | 2014 |
| • USA Junior Mathematics Olympiad Qualifier   | 2013 |