Augustine George Chemparathy

augustine.chemparathy@stanford.edu

EDUCATION

Stanford University, Stanford, CA Sep 2015-Present

- BS, Computer Science and Bioengineering, Phi Beta Kappa, with Distinction
- MS, Management Science and Engineering, Health Systems Modeling and Policy track
- Relevant coursework: Deep Learning (*CS 230*); Systems Biology (*BioE 101*); Healthcare Operations Management (*MS&E 263*); Health Policy Modeling (*MS&E 292*)

EXPERIENCE

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 to make antiviral crRNA sets available to the research community.

Systems Utilization Research for Stanford Medicine (SURF) student March 2018-Present

- Designed and evaluated a electronic health record dashboard at Stanford 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%.

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.
- 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.

Arbor Biotechnologies, Computational Biology 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, 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

PUBLICATIONS

- **Chemparathy, A.**, Seneviratne, M., Ward, A., Mirchandani, S., Li, R., Mathew, R., Wood, M., Shin, A., Donnelly, L., Scheinker, D., Lee, G. (2021). Development and implementation of a real-time bundle adherence dashboard for central line associated bloodstream infections. Upcoming publication in Pediatric Quality and Safety.
- Lin, X.*, Liu, Y.*, **Chemparathy, A.***, La Russa, M., Qi, Lei S. (2021). A comprehensive analysis and resource to use CRISPR-Cas13 for broad-spectrum targeting of RNA viruses. Cell Reports Medicine. (***these authors contributed equally**)
- Abbott, T., Dhamdhere, G., Liu, Y., Lin, X., Goudy, L., Zeng, L., **Chemparathy, A.**, Chmura, S., Heaton, N., Debs, R., Pande, T., Endy, D., La Russa, M., Lewis, D., Qi, Lei S. (2020). Development of CRISPR as an antiviral strategy to combat SARS-CoV-2 and influenza. Cell.
- Lin, X., **Chemparathy, A.**, La Russa, M., Daley, T., Qi, Lei S. (2020). Computational Methods for Analysis of Large-Scale CRISPR Screens. Annual Review of Biomedical Data Science.
- Paggi, J., Belk, J., Hollingsworth, A., Villaneuva, N., Powers, A., Clark, M., **Chemparathy, A.**, Tynan, J., Lau, T., Sunahara, R., Dror, R. (2020). Leveraging non-structural data to predict structures of protein-ligand complexes. bioRxiv.
- Venkatakrishnan, AJ, Fonseca, R., Ma, A., Hollingsworth, S., **Chemparathy, A.**, Hilger, D., Kooistra, A., Ahmari, R., Madan Babu, M., Kobilka, B., Dror, R. (2019). Uncovering patterns of atomic interactions in static and dynamic structures of proteins. bioRxiv.