

## Andrew G. Sharo

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### Education

- 2016-present **University of California, Berkeley**, Berkeley, CA  
Ph.D. in Biophysics, Designated Emphasis in Computational and Genomic Biology  
Relevant coursework: Biostatistics, Genomics, Machine Learning, Data Visualization
- 2012-2016 **Princeton University**, Princeton, NJ  
A.B. in Physics with Honors, Certificate in Biophysics  
Relevant Coursework: Biological Physics, Logic in Quantitative Biology, Laboratory in Molecular Biology, Quantitative Cell Biology, Algorithms and Data Structures in CS, Advanced Program Design

### Research Experience

- 2016-present Ph.D. Candidate  
**Steven Brenner Group**, UC Berkeley, Berkeley, CA  
Developed supervised learning method to predict the pathogenicity of germline structural variants. Analyzed short-read, long-read, and optical mapping sequencing data for disease gene discovery.
- 2015-2016 Undergraduate Senior Thesis Student  
**Bonnie Bassler and Ned Wingreen Groups**, Princeton University, Princeton, NJ  
Imaged *V. cholerae* biofilms at single-cell resolution using confocal microscopy.  
Simulated biofilm growth with agent-based model.
- 2015 Undergraduate Research Assistant  
**Howard Stone Group**, Princeton University, Princeton, NJ  
Modeled nutrient diffusion as a public goods dilemma in bacterial biofilms.
- 2014-2015 Undergraduate Junior Thesis Student  
**Robert Austin Group**, Princeton University, Princeton, NJ  
Derived novel equation for the growth variance of a mutant bacterial population.
- 2014 Visiting Researcher  
**Eberhard Bodenschatz Group**, Max Planck Institute DS, Göttingen, Germany  
Visualized traveling chemotactic waves of *D. discoideum* using dark field microscopy.
- 2013 Lab Assistant  
**Marija Drndic Group**, University of Pennsylvania, Philadelphia, PA  
Developed new manufacturing process for silicon-nitride nanopores for sequencing.

### Awards & Fellowships

- 2020 Abstract selected for “Reviewers’ Choice” and Poster Talk at ASHG 2020  
Awarded to the top ~1% of posters.
- 2019 Finalist at SVAI hackathon “Undiagnosed-1” held at Invitae, San Francisco, CA
- 2018 NSF Graduate Research Fellow
- 2016 Molecular Biophysics Training Grant (NIH T32) Fellow, UC Berkeley

- 2016 Allen G. Shenstone Prize in Physics, Department of Physics, Princeton University  
Awarded for excellence in independent research and academic work.
- 2015 Kusaka Memorial Prize in Physics, Department of Physics, Princeton University  
Awarded for excellence in independent research and academic work.
- 2015 Treiman Fellow, Department of Physics, Princeton University  
Fully funded summer research and housing at Princeton University.
- 2015 25 under 25, awarded by Princeton Science Journal *Innovation*  
Awarded to Princeton University Physics Competition for global education efforts.
- 2014 International Internship Scholar from Princeton University  
Fully funded research, travel, stipend, and housing at Max Planck Institute for  
Dynamics and Self-Organization, Göttingen, Germany.
- 2014 Princeton University Art of Science Finalist  
Campus-wide science photography contest.
- 2010 Eagle Scout, Troop 181 of Paoli, PA  
Worked with local bookseller and parish to donate high-interest reading books to  
first grade class at St. Malachy School in North Philadelphia, PA.

### **Scholarly Publications**

4. McInnes G\*, **Sharo AG\***, Koleske ML\*, Brown JEH\*, et al. 2020. Opportunities and challenges for interpreting rare variation in clinically important genes. *Preprints*.  
doi:10.20944/preprints202011.0599.v1 (\* indicates co-first author; accepted for publication to American Journal of Human Genetics)
3. Shieh JT, [...], **Sharo AG**, et al. 2020. Application of Full Genome Analysis to Diagnose Rare Monogenic Disorders. *medRxiv*. doi:10.1101/2020.10.22.20216531 (accepted for publication to npj Genomic Medicine)
2. **Sharo AG**, Hu Z, Brenner SE. 2020. StrVCTVRE: A supervised learning method to predict the pathogenicity of human structural variants. *bioRxiv*. doi:10.1101/2020.05.15.097048
1. Yan J, **Sharo AG**, Stone HA, Wingreen NS, Bassler BL. 2016. Vibrio cholerae biofilm growth program and architecture revealed by single-cell live imaging. *Proc. Natl. Acad. Sci. U.S.A.* 113: E5337-E5343. doi:10.1073/pnas.1611494113

### **Major Talks**

- Sharo AG**, Zou Y, Adhikari AN, Brenner SE. ClinVar and HGMD over time: Incidence of misclassified variants across populations highlights strengths of curation databases and importance of population-specific resources. Poster Talk. American Society of Human Genetics Annual Meeting. Oct 27, 2020. Virtual.
- Sharo AG**, Brenner SE. StrVCTVRE: A supervised learning method to predict the pathogenicity of structural variants. Platform Presentation. American Society of Human Genetics Annual Meeting. Oct 19, 2019. Houston, TX.

## Teaching Experience

Spring 2021 Graduate Student Instructor, **MCB 102 Biochemistry**, UC Berkeley  
Taught two weekly discussion sections, with a total of 54 students. Developed weekly quizzes and graded student participation. Discussion sections focused on active learning techniques including polls, practice problems, and peer instruction.

## STEM Outreach

2021 Organizer, **One Health Covid-19 Seminars**  
Led weekly seminar on the science and politics of Covid-19. Communicated basic science behind the immune system, vaccination, and epidemics to a lay audience. Seminar recordings available at [www.onehealth.world/documents/](http://www.onehealth.world/documents/)

2016-2020 Instructor, Steering Committee Member, **Bay Area Scientists in Schools**  
Led monthly science lessons for 5th grade students in Berkeley and Oakland, CA. Taught a lesson on DNA replication that includes isolating banana DNA.

2016-2020 Co-founder and COO, **Physics Unlimited 501(c)(3)**  
Coordinated global high school physics competition held annually. Attracted funders to support our work. Awarded six mini grants of \$500 to US high school science teachers to improve remote learning during COVID-19 pandemic.

2017 Mentor, **Be A Scientist Program**  
Met weekly with six 7<sup>th</sup> grade students at MLK Jr Middle School in Berkeley, CA. Supported them to design, realize, and analyze results from a science experiment.

2015 Co-Director, **Princeton University Physics Competition**  
Led annual physics competition with 100+ high school US participants and 800+ global participants. Secured funding from trading firms and Princeton departments.

## Outreach Publications

**Sharo, AG.** Focal power to the people. Fall, 2016. *Berkeley Science Review*.

## Skills

Computational analysis: Python, R, Bash, Java, C, HTML, MATLAB, Mathematica, and Labview programming; Various computational biology applications

Laboratory: PCR, confocal microscopy, strain engineering, microfluidics, plasma etching, photolithography

Music: Ukulele and piano; excellent stress outlet when research goes awry.

Languages: Proficient in French

Calm in stressful situations: Organized and led 30-person street safety team for march of 300 protesters in Salt Lake City, Utah.