

# Gregory W. Gundersen

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Citizenship: United States

## Education

Sep 2016 – Present	Princeton University	Ph.D. candidate (Computer Science) Advisor: Barbara E. Engelhardt
May 2011	Yale University	M.Arch.
May 2009	Oklahoma State University	B.Arch.

## Professional Experience

**Princeton University**     **Graduate Student Researcher**  
Sep 2016 – Present     Working on problems in machine learning and statistical inference.

**Mount Sinai**     **Research Software Engineer**  
Oct 2014 – Sep 2016     Built multiple tools (see Publications) for processing, analyzing, and visualizing high-dimensional biomedical data in Python, Java, and JavaScript. Helped build lab's scientific computing cluster.

**Integral Ad Science**     **Software Engineer**  
Jul 2013 – Oct 2014     Developed ad tracking technology that handled 1.3 billion daily requests with complete cross-browser support and no third-party libraries. Refactored ad viewability detection code to increase modularity and testability. Wrote over 650 unit tests, increasing coverage by 450%. Redesigned code delivery system, resulting in 40% increase in requests per second.

**Worldnow**     **Web Production Manager**  
Jul 2012 – Jul 2013     Managed weekly code deployment for over 200 websites.

**Yale University**     **Research Assistant**  
May 2011 – Jul 2012     Quantified thermodynamics of synaptic SNARE protein unzipping. Results published in *Science* (see Publications).

## Teaching

**Princeton University**     **Assistant in Instruction, *Fundamentals of Machine Learning***  
Spring 2018     Teaching data analysis techniques such as classification, clustering, regression, dimensionality reduction, and probabilistic modeling.

**Princeton University**     **Assistant in Instruction, *Introduction to Programming Systems***  
Fall 2017     Teaching program design and development, machine organization, assembly language programming, and software tools in C, x86-64 and Linux.

**Coalition for Queens**     **Volunteer Instructor, *Access Code***  
Spring 2014     Taught basics of Java programming. See Volunteering.

## Publications

1. Fernandez, N., Gundersen, G., Rahman, A., Grimes, M., Rikova, K., Hornbeck, P., Ma'ayan, A. (2017) Clustergrammer, a web-based heatmap visualization and analysis tool for high-dimensional biological data. *Scientific Data*.
2. Gundersen, G., Jagodnik, K., Woodland, H., Fernandez N., Sani, K., Dohlman, A., Man-Ung, P., Monteiro, C., Schlessinger, A., Ma'ayan, A. (2016) GEN3VA: aggregation and analysis of gene expression signatures from related studies. *BMC Bioinformatics*, p. 461.
3. Wang, Z. and 48 authors (Gundersen, G., author no. 5). ( 2016) Extraction and Analysis of Signatures from the Gene Expression Omnibus by the Crowd. *Nature Communications*, p. 12846.
4. Kuleshov, M., Jones, M., Rouillard, A., Fernandez, N., Duan, Q., Wang, Z., Koplev, S., Jenkins, S., Jagodnik, K., Lachmann, A., McDermott, M., Monteiro, C., Gundersen, G., Ma'ayan, A. (2016) Enrichr: a comprehensive gene set enrichment analysis web server 2016 update. *Nucleic Acids Research*, pp. W90-W97.
5. Rouillard, A., Gundersen, G., Fernandez, N., Wang, N., Monteiro, C., McDermott, M., Ma'ayan, A. (2016) The harmonizome: a collection of processed datasets gathered to serve and mine knowledge about genes and proteins. *Database (Oxford)*.
6. Gundersen, G., Jones, M., Rouillard, A., Kou, Y., Monteiro, C., Feldmann, A., Hu, K., Ma'ayan, A. (2015) GEO2Enrichr: browser extension and server app to extract gene sets from GEO and analyze them for biological functions. *Bioinformatics*, pp. 3060–3062.
7. Gao, Y., Zorman, S., Gundersen, G., Xi, Z., Ma, L., Sirinakis, G., Rothman, J., Zhang, Y. (2012) Single Reconstituted Neuronal SNARE Complexes Zipper in Three Distinct Stages. *Science*, pp. 1340–1343.
8. Zhang, Y., Sirinakis, G., Gundersen, G., Xi, Z., Gao, Y. ( 2012) DNA translocation of ATP-dependent chromatin remodeling factors revealed by high-resolution optical tweezers. *Methods Enzymol*, pp. 3–28.

## Scholarships & Awards

- 2017 Foundational Prize, Fragile Families Challenge
- 2015 Volunteer of the Year, Coalition for Queens (Co-honoree, see volunteering)
- 2011 Everett Victor Meeks Fellowship, Yale University
- 2008 Wentz Leadership Scholarship, Oklahoma State University
- 2007 Study Abroad Office Scholarship, Oklahoma State University
- 2003 Freshman Award for Excellence Scholarship, Oklahoma State University

## Volunteering

- 2016 – Present **Volunteer**, Prison Teaching Initiative  
Leading a team of computer science graduate students to develop an accredited computer science course to be offered at New Jersey state prisons.
- 2014 – 2016 **Education Co-chair**, Coalition for Queens  
Helped plan, organize, and teach an intensive, 9-month program to train students from underserved populations in software development.

## Talks

- Nov 2017 Fragile Families Challenge Scientific Workshop Princeton, NJ
- Feb 2015 American Association of Cancer Research Conference San Francisco, CA