# Armin Pourshafeie

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Department of Physics

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## Education

**Stanford University**

Ph.D. candidate, Physics.

Advisor: Carlos D. Bustamante. Co-Advisor: Steven Chu.

Research focus in computational genetics and biomdeical data science.

M.A., Statistics, 2018 (expected).

**Harvard College**

A.B. in Physics and Mathematics, 2009-2013.

*Magna cum laude* with Highest Honors in Field.

## Research

**Biological Network Analysis**

Networks provide an effective abstraction of biological systems but real world data can
be noisy. Computational tools can improve the quality of experimentally constructed networks.

Unsupervised learning from noisy networks with applications to Hi-C data.
Wang B, Zhu J, **Pourshafeie A**, Ursu O, Batzoglou S, Kundaje A.
NIPS 2016 (pp. 3305-3313).

Network Enhancement: A General Method to Denoise Weighted Biological Networks
Bo Wang*, **Armin Pourshafeie**\*, Marinka Zitnik*, Junjie Zhu, Carlos D. Bustamante,
Serafim Batzoglou, Jure Leskovec. Nature Communications (in press) 2018
\* Equal contribution

**Multicenter GWAS**

The current paradigm of accumulating genetic data in central location(s) is undesirable.
Due to security risks, expenses, privacy/regulatory issues...). An alternative angle is
distributed learning across multiple data silos.

Caring without Sharing: GWAS in a Decentralized Paradigm
**Armin Pourshafeie**, Carlos D. Bustamante, Snehit Prabhu,
(Under preparation)

## Teaching

**Dept. Physics, Stanford University**

TA, Physics 43: Electricity and Magnetism, 2015

TA, Physics 67: Introduction to Laboratory Physics, 2015

**Dept. Applied Mathematics, Harvard University**

TA, Applied Math 111: Scientific Computing, 2013-2014

**Dept. Physics, Harvard University**
TA, Physics 123/223: Laboratory Electronics, 2012-2014

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| **Awards and Fellowships** | NIH-SGTP 2015-2018 |
| | Magna cum laude with highest honors in field 2013 |
| | Harvard University Certificate of Distinction in Teaching 2013 |
| | NSF Research Experience for Undergraduates (REU) Fellowship 2008 |
| | Harvard College Research Program (HCRP) Fellow 2011 |
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| **Presentations and Talks** | American Society of Human Genetics (ASHG) 2018. |
| | Invited Session on genetic data privacy (Organizer, Moderator). |
| | ASHG 2018. Poster presentation. |
| | NHGRI Annual Training and Career Development Meeting 2018. Poster presentation. |
| | ASHG 2017. Poster presentation. |
| | NHGRI Annual Training and Career Development Meeting 2017. Poster presentation. |
| | ASHG 2016. Poster presentation. |
| | NHGRI Annual Training and Career Development Meeting 2016. Poster presentation. |
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| **Community Outreach** | Organizer and moderator for Genetic Data Privacy invited session at American Society of Human Genetics (2018). |
| | Co-instructor for Stanford Artificial Intelligence Laboratory's Outreach Summer Program (SAILORS 2016). Materials at: https://github.com/apoursh/sailors-compbio |
| | Harvard Model Congress (2012) |
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| **Languages and Skills** | English (native), Farsi (native) |
| | Python, R, MATLAB, Mathematica, C++(intermediate) |
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| **Relevant Courses** | Applied Statistics (Stat315a,b), Mining Massive Data Sets (CS246), Deep Learning in Genomics and Biomedicine (CS273b), Computational Genomics (CS242), Algorithms in Biology (CS374) Convex Optimization (EE364a,b), Statistical and ML Methods for Genomics (Stats345) |
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| **Hobbies** | Weightlifting, gardening. |