

# BRIAN HIE

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## EDUCATION

**Massachusetts Institute of Technology**, Cambridge, MA

**Electrical Engineering and Computer Science, Ph.D. candidate** 2017-Present

- ♦ GPA: 5.0/5.0; Areas of concentration: Machine learning, algorithms, computational biology

**Stanford University**, Palo Alto, CA

**Computer Science, B.S. with Honors and Distinction** 2012-2016

**Minor in English Literature**

- ♦ GPA: 3.9/4.0; Areas of concentration: Machine learning, computational biology, distributed systems

## RESEARCH EXPERIENCE

**Massachusetts Institute of Technology**, Cambridge, MA

**Computer Science and Artificial Intelligence Laboratory (CSAIL)** 2017-Present

- ♦ Achieved privacy-preserving and scalable neural network training on large, cryptographically hidden data sets, applied to drug-target interaction prediction (<https://github.com/brianhie/secure-dti>).
- ♦ Applying novel algorithmic techniques for analyses of high-dimensional data to derive better biological insight from single cell RNA-sequencing data sets (<https://github.com/brianhie/scanorama> and <https://github.com/brianhie/ample>).

**Stanford University**, Palo Alto, CA

**Hunter Fraser Laboratory, Biology** 2013-2016

- ♦ Applied machine learning methods to predict associations between transcription factor binding and gene expression.
- ♦ Used statistical methods to explore the relationship between genotype and the formation and function of circular RNAs.

**Stanford University**, Palo Alto, CA

**Shakeosphere Project, Digital Humanities** 2016

- ♦ Applied graph-theoretic algorithms to understand the evolution of social networks of early modern English authors, printers, publishers, and booksellers.

## WORK EXPERIENCE

**Illumina, Inc.**, San Diego, CA

**Machine Learning Intern** 2018

- ♦ Analyzed large genomic data sets by developing novel unsupervised and semi-supervised statistical machine learning methods.

**Salesforce.com, Inc.**, San Francisco, CA

**Software Engineer, Cloud Infrastructure** 2016-2017

- ♦ Developed algorithms and a distributed pipeline that scaled to petabytes of system log and metric data to generate accurate key performance indicators visible to top company leadership.

**Microsoft Corporation**, Redmond, WA

**Software Engineering Intern, Azure Compute and Microsoft Research** 2015

- ♦ Investigated different distributed scheduling algorithms and their impact on utilization and availability on a simulated Azure data center.

**Synaptics, Inc.**, San Jose, CA

**Systems Architecture/Algorithms Intern** 2014

- ♦ Developed and implemented an algorithm for optimal touchscreen finger tracking by solving the minimum weight bipartite matching problem.

## PUBLICATIONS

**B. Hie\***, H. Cho\*, B. DeMeo, B. Bryson, and B. Berger. (\*Equal contribution.)  
*"Geometric sketching of single-cell data preserves transcriptional structure."*  
 (In preparation). 2018

**B. Hie**, B. Bryson, and B. Berger.  
*"Panoramic stitching of heterogeneous single cell transcriptomic data."*  
 bioRxiv (Preprint). 2018

**B. Hie\***, H. Cho\*, and B. Berger. (\*Equal contribution.)  
*"Realizing private and practical pharmacological collaboration."*  
*Science*, 362:6417 (2018). 2018

A.K. Tehranchi, **B. Hie**, M. Dacre, I.M. Kaplow, K.P. Pettie, P.A. Combs, and H.B. Fraser.  
*"Fine-mapping cis-regulatory variants in diverse human populations."*  
*eLife* (In Press). 2018

A.K. Tehranchi, M. Myrthil, T. Martin, **B. Hie**, D. Golan, and H.B. Fraser.  
*"Pooled ChIP-seq links variation in transcription factor binding to complex disease risk."*  
*Cell*, 165:3 (2016). 2016

## AWARDS

Hoefer Prize for Writing in the Major, Nominated, *Stanford University* 2016  
 Tau Beta Pi Engineering Honors Society 2015  
 Lunsford Award for Oral Presentation, Nominated, *Stanford University* 2014  
 Boothe Prize for Excellence in Writing, Honorable Mention, *Stanford University* 2013  
 President's Award for Academic Achievement, *Stanford University* 2013  
 National Merit Scholarship Finalist 2012