BRIAN HIE

brianhie@mit.edu | github.com/brianhie | brianhie.com

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/geosketch).

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."
To appear at RECOMB 2019.   2019

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