

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 2019-Present

Electrical Engineering and Computer Science, M.S. 2017-2019

- ♦ GPA: 4.9/5.0; 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 AND WORK EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA

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

- ♦ Applying novel algorithmic techniques that scale to large, high-dimensional data sets to derive better biological insight from single cell experiments (<https://github.com/brianhie/scanorama> and <https://github.com/brianhie/geosketch>).
- ♦ 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>).

Illumina, Inc., San Diego, CA

Machine Learning Intern 2018

- ♦ Early stage, experimental project requiring analysis of large genomic data sets via 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.

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.

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."

RECOMB 2019.

2019

B. Hie, B. Bryson, and B. Berger.

"Efficient integration of heterogeneous single-cell transcriptomes using Scanorama."

Nature Biotechnology.

2019

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, 8:e39595.

2019

B. Hie*, H. Cho*, and B. Berger. (*Equal contribution.)

"Realizing private and practical pharmacological collaboration."

Science, 362:6417.

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

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