

# BRIAN HIE

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## 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: Algorithms, computational biology, machine learning, statistics

**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: Computational biology, distributed systems, machine learning

## RESEARCH AND WORK EXPERIENCE

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

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

- ♦ Insightful and efficient geometric algorithms for single-cell biology (<https://github.com/brianhie/scanorama> and <https://github.com/brianhie/geosketch>).
- ♦ Cryptographically secure neural network training (<https://github.com/brianhie/secure-dti>).

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

*Teaching Assistant, Algorithms for Inference (6.438)* 2019

- ♦ Graduate-level course on statistical inference with probabilistic graphical models. Responsible for preparing exams/assignments, leading discussion sections, and holding office hours.

**Google LLC**, Mountain View, CA

*Artificial Intelligence/Machine Learning Resident, X – The Moonshot Factory* 2019

- ♦ Machine learning for early-pipeline moonshots.

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

*Machine Learning Intern, Bioinformatics* 2018

- ♦ Statistical signal processing for genomics-based health monitoring.

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

*Software Engineer, Cloud Infrastructure* 2016-2017

- ♦ Robust performance monitoring of globally distributed core application infrastructure.

**Stanford University**, Palo Alto, CA

*Hunter Fraser Laboratory, Biology* 2013-2016

- ♦ Statistics and machine learning for computational genomics, including fundamental problems involving transcription factor binding, chromatin accessibility, and circular RNA structure.

**Stanford University**, Palo Alto, CA

***Shakeosphere Project, Digital Humanities*** 2016

- ♦ Graph-theoretic analysis of the social network of early modern authors and publishers.

**Microsoft Corporation**, Redmond, WA

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

- ♦ Distributed scheduling algorithms and their impact on data center utilization and availability.

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

***Systems Architecture/Algorithms Intern*** 2014

- ♦ Algorithm design and implementation for embedded touchscreen firmware.

## PUBLICATIONS

**B. Hie\***, J. Peters\*, S. Nyquist\*, A. Shalek, B. Berger, and B. Bryson. (\*Equal contribution.)

*"Coexpression enables multi-study cellular trajectories of development and disease."*

*Annual Review of Biomedical Data Science*, 3:1. 2020

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

*"Geometric sketching of single-cell data preserves transcriptional structure."*

*Cell Systems*, 8:6. 2019

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

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

*Nature Biotechnology*, 37:6. 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

## PATENTS

**B. Hie**, B. Berger, and H. Cho.

*"Realizing private and practical pharmacological collaboration."*

US Patent App. 16/235,606. 2019

## AWARDS

National Defense Science and Engineering Graduate (NDSEG) Fellow	2019-Present
Hoefer Prize for Writing in the Major, Nominated, <i>Stanford University</i>	2016
Tau Beta Pi Engineering Honors Society	2015-Present
Lunsford Award for Oral Presentation, Nominated, <i>Stanford University</i>	2014
Boothe Prize for Excellence in Writing, Honorable Mention, <i>Stanford University</i>	2013
President's Award for Academic Achievement, <i>Stanford University</i>	2013
National Merit Scholarship Finalist	2012