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. Bryson, and B. Berger.
"Coexpression enables multi-study cellular trajectories of development and disease."
bioRxiv, 10.1101/719088. 2020

R. Singh, A. Narayan, **B. Hie**, and B. Berger.
"Schema: A general framework for integrating heterogeneous single-cell modalities."
bioRxiv, 10.1101/834549. 2019

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, *Stanford University*	2016
Tau Beta Pi Engineering Honors Society	2015-Present
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