BRIAN L. HILL

Curriculum Vitae
brian.l.hill11@gmail.com ⋄ www.brianlhill.info

EDUCATION

University of California, Los Angeles Sep. 2016 - Dec. 2021
Ph.D. Computer Science
Advisor - Professor Eran Halperin

University of California, Los Angeles Sep. 2016 - June 2019
M.S. Computer Science

Oregon State University Sep. 2012 - June 2016
B.S. Electrical and Computer Engineering

INDUSTRY EXPERIENCE

Optum AI (formerly Optum Labs) Dec. 2021 - Present
Senior Principal Data Scientist

Microsoft Research May 2021 - Aug. 2021
Research Intern

Omics Data Automation June 2016 - June 2019
Founding Engineer

Intel June 2012 - June 2016
Intern
Health Strategy & Solutions Group 2013 - 2016
Heterogeneous Computing Group 2012 - 2013

TECHNICAL SKILLS

Programming Languages: Python, C/C++, SQL
Tools and Frameworks: Linux, Git, Keras/Tensorflow, Scikit-learn

TEACHING EXPERIENCE

University of California, Los Angeles Sep. 2017 - June 2018
Teaching Assistant

Computational Genetics (Spring 2018)
Computer Systems Architecture (Winter 2018)
Introduction to Computer Organization (Fall 2017)

PEER-REVIEWED PUBLICATIONS

* - denotes joint authorship

1. **Electronic health record signatures identify undiagnosed patients with Common Variable Immunodeficiency Disease**
   Ruth Dolly Johnson, Alexis V Stephens, Rachel Mester, Sergey Knyazev, Lisa A Kohn, Malika K Freund, Leroy Bondhus, Brian L. Hill, Tommer Schwarz, Noah Zaitlen, Valerie Arboleda, Lisa A. Bastarache, Bogdan Pasaniuc, Manish J Butte; Science Translational Medicine (2024).

2. **CHIRon: A Generative Foundation Model for Structured Sequential Medical Data**
   Brian L. Hill, Melika Emami, Vijay S. Nori, Aldo Cordova-Palomera, Robert Tillman, Eran Halperin; Deep Generative Models for Health (DGM4H) Workshop, NeurIPS (2023).

3. **Understanding and Predicting the Effect of Environmental Factors on People with Type 2 Diabetes**
   Kailas Vodrahalli, Gregory D. Lyng, Brian L. Hill, Kimmo Karkkainen, Jeffrey Hertzberg, James Zou, Eran Halperin; Conference on Health, Inference, and Learning (CHIL) (2023).

4. **EfficientPhys: Enabling Simple, Fast and Accurate Camera-Based Cardiac Measurement**
   Xin Liu, Brian L. Hill, Ziheng Jiang, Shwetak Patel, Daniel McDuff; Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) (2023).

5. **Extend and Explain: Interpreting Very Long Language Models**
   Joel Stremmel, Brian L. Hill, Jeffrey Hertzberg, Jaime Murillo, Llewelyn Allotey, Eran Halperin; Proceedings of the 2nd Machine Learning for Health (ML4H) symposium (2022).

6. **SCAMPS: Synthetics for Camera Measurement of Physiological Signals**
   Daniel McDuff, Miah Wander, Xin Liu, Brian L. Hill, Javier Hernandez, Jonathan Lester, Tadas Baltrusaitis; Advances in Neural Information Processing Systems (NeurIPS) (2022).

7. **Leveraging genomic diversity for discovery in an electronic health record linked biobank: the UCLA ATLAS Community Health Initiative**
   Ruth Johnson, Yi Ding, Vidhya Venkateswaran, Arjun Bhattacharya, Kristin Boulier, Alec Chiu, Sergey Knyazev, Tommer Schwarz, Malika Freund, Lingyu Zhan, Kathryn S. Burch, Christa Caggiano, Brian Hill, Nadav Rakocz, Brunilda Balliu, Christopher T. Denny, Jae Hoon Sul, Noah Zaitlen, Valerie A. Arboleda, Eran Halperin, Sriram Sankararaman, Manish J. Butte, UCLA Precision Health Data Discovery Repository Working Group, UCLA Precision Health ATLAS Working Group, Clara Lajonchere, Daniel H. Geschwind, Bogdan Pasaniuc; Genome Medicine (2022).

8. **Methylation risk scores are associated with a collection of phenotypes within electronic health record systems**
   Mike Thompson*, Brian L. Hill*, Nadav Rakocz, Jeffrey N. Chiang, Daniel Geschwind, Sriram Sankararaman, Ira Hofer, Maxime Cannesson, Noah Zaitlen, Eran Halperin; npj Genomic Medicine (2022).

9. **Robust Mendelian randomization in the presence of residual population stratification, batch effects and horizontal pleiotropy**

Carlos Cinelli, Nathan LaPierre, Brian L. Hill, Sriram Sankararaman, Eleazar Eskin; Nature Communications (2022).

10. **Beat-to-beat cardiac pulse rate measurement from video**
Brian L. Hill, Xin Liu, Daniel McDuff; Proceedings of the IEEE/CVF International Conference on Computer Vision (2021).

11. **Imputation of the continuous arterial line blood pressure waveform from non-invasive measurements using deep learning**
Brian L. Hill, Nadav Rakocz, Akos Rudas, Jeffrey N. Chiang, Sidong Wang, Ira Hofer, Maxime Cannesson*, Eran Halperin*; Scientific Reports (2021).

12. **Automated identification of clinical features from sparsely annotated 3-dimensional medical imaging**
Nadav Rakocz*, Jeffrey N. Chiang*, Muneeswar G. Nittala, Giulia Corradetti, Liran Tiosano, Swetha Velaga, Michael Thompson, Brian L. Hill, Sriram Sankararaman, Jonathan L. Haines, Margaret A. Pericak-Vance, Dwight Stambolian, Srinivas R. Sadda*, Eran Halperin*; npj Digital Medicine (2021).

13. **Bladder Cancer Immunotherapy by BCG Is Associated with a Significantly Reduced Risk of Alzheimers Disease and Parkinsons Disease**
Danielle Klinger, Brian L. Hill, Noam Barda, Eran Halperin, Ofer N. Gofrit, Charles L. Greenblatt, Nadav Rappoport, Michal Linial, Herv Bercovier; Vaccines (2021).

14. **A machine learning algorithm to increase COVID-19 inpatient diagnostic capacity**
David Goodman-Meza, Akos Rudas, Jeffrey N. Chiang, Paul C. Adamson, Joseph Ebinger, Nancy Sun, Patrick Botting, Jennifer A. Fulcher, Faysal G. Saab, Rachel Brook, Eleazar Eskin, Ulzee An, Misagh Kordi, Brandon Jew, Brunilda Balliu, Zeyuan Chen, Brian L. Hill, Elior Rahmani, Eran Halperin, Vladimir Manuel; PLOS ONE (2020).

15. **BATMAN: fast and accurate integration of single-cell RNA-Seq datasets via minimum-weight matching**
Igor Mandric, Brian L. Hill, Malika K. Freund, Michael Thompson, Eran Halperin; iScience (2020).

16. **Advancing clinical cohort selection with genomics analysis on a distributed platform**
Jaclyn M. Smith, Melvin Lathara, Hollis Wright, Brian Hill, Nalini Ganapati, Ganapati Srinivasa, Christopher T. Denny; PLOS ONE (2020).

17. **Benchmarking of computational error-correction methods for next-generation sequencing data**
Keith Mitchell, Jaqueline J Brito, Igor Mandric, Qiaozhen Wu, Sergey Knyazev, Sei Chang, Lana S. Martin, Aaron Karlsberg, Ekaterina Gerasimov, Russell Littman, Brian L. Hill, Nicholas C Wu, Harry Taegyun Yang, Kevin Hsieh, Linus Chen, Eli Littman, Taylor Shabani, German Enik, Douglas Yao, Ren Sun, Jan Schroeder, Eleazar Eskin, Alex Zelikovsky, Pavel Skums, Mihai Pop, Serghei Mangul; Genome Biology (2020).

18. **An automated machine learning-based model predicts postoperative mortality using readily-extractable preoperative electronic health record data**
Brian L. Hill*, Robert Brown*, Eilon Gabel, Nadav Rakocz, Christine Lee, Maxime Can-

nesson, Pierre Baldi, Loes Olde Loohuis, Ruth Johnson, Brandon Jew, Uri Maoz, Aman Mahajan, Sriram Sankararaman, Ira Hofer, Eran Halperin; British Journal of Anaesthesia (2019).

19. **Challenges and recommendations to improve the installability and archival stability of omics computational tools**
Serghei Mangul, Thiago Mosqueiro, Richard J. Abdill, Dat Duong, Keith Mitchell, Varuni Sarwal, Brian L. Hill, Jaqueline Brito, Russell Jared Littman, Benjamin Statz, Angela Ka-Mei Lam, Gargi Dayama, Laura Grieneisen, Lana S. Martin, Jonathan Flint, Eleazar Eskin, Ran Blekhman; PLOS Biology (2019).

20. **Systematic benchmarking of omics computational tools**
Serghei Mangul, Lana S Martin, Brian L. Hill, Angela Ka-Mei Lam, Margaret Distler, Alex Zelikovsky, Eleazar Eskin, Jonathan Flint; Nature Communications (2019).

21. **Precision medicine and FPGA technology: Challenges and opportunities**
Brian Hill, Jaclyn Smith, Gans Srinivasa, Kemal Sonmez, Ashish Sirasao, Amit Gupta, Madhubanti Mukherjee; MWSCAS (2017).

PREPRINTS

1. **Learning Higher-Order Dynamics in Video-Based Cardiac Measurement**
Brian L. Hill, Xin Liu, Daniel McDuff; arXiv:2110.03690 (2021).

PATENTS

1. **Systems and Methods for Imputing Real-Time Physiological Signals**
WO/2021/034960

2. **System and method for integrating data for precision medicine**
US/2019/0163679