

## HUSSEIN MOHSEN

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### EDUCATION

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#### **Yale University, New Haven, CT, USA**

*Doctor of Philosophy (PhD) in Computational Biology & Bioinformatics*

**Aug 2016-May 2022**

*Committee:* Mark Gerstein, Lajos Puzstai, Kei-Hoi Cheung, Sahand Negahban

*Master of Arts (MA) in History of Science & Medicine*

**Jan-Dec 2019**

#### **Indiana University, Bloomington, IN, USA**

**Aug 2013-May 2015**

*Master of Science (MS) in Bioinformatics (Core: Computer Science)*

#### **Newcastle University, Newcastle upon Tyne, UK**

**Sep 2012-May 2013**

*Postgraduate Exchange Student at the School of Computing Science*

#### **Lebanese American University, Beirut, Lebanon**

**Sep 2008-Jun 2011**

*Bachelor of Science (BS) in Computer Science with High Distinction*

### PROFESSIONAL EXPERIENCE

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#### **Postdoctoral Fellow**

**March 2025-**

University of Toronto, Toronto, ON, Canada

*PIs:* John Morris (Molecular Genetics) and Gary Bader (Molecular Genetics and Computer Science)

#### **Postdoctoral Research Fellow**

**July 2022-February 2025**

Memorial Sloan Kettering Cancer Center, New York, NY, USA

*PIs:* Quaid Morris (Comp. & Systems Biology) and Jian Carrot-Zhang (Epidemiology & Biostatistics)

#### **Teaching Fellow**

**Jan-May 2019, Jan-May 2020**

Yale University, New Haven, CT, USA

*Courses:* Biomedical Data Science (Spring'19 and '20)

#### **Summer Engineering Intern/Research Engineer**

**Jun 2015-May 2016**

Lattice Engines, Inc., San Mateo, CA, USA

Machine learning R&D

**Associate Instructor****Aug 2013-May 2013**

Indiana University, Bloomington, IN, USA

Courses: Data Mining (Spring'15) and Discrete Mathematics (Fall'13 and Spring '14)

**Software Developer****Mar 2011-Aug 2012**

CCT International, Beirut, Lebanon

**SELECTED PUBLICATIONS**

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**H. Mohsen**, K. Blenman, P. S. Emani, Q. Morris, J. Carrot-Zhang, and L. Pusztai (2023). Dynamic clustering of genomics cohorts beyond race, ethnicity—and ancestry, *bioRxiv*, doi 10.1101/2023.08.04.552035. **Reviewers' Choice Abstract Award**: American Society of Human Genetics Annual Meeting, Nov 2023 (ASHG '23). **Invited Talk**: Society for Molecular Biology & Evolution, Jul 2024 (SMBE'24).

T. Qing\*, **H. Mohsen**\*, V.L. Cannataro, M. Marczyk, M. Rozenblit, J. Foldi, M.F. Murray, J.P. Townsend, Y. Kluger, M. Gerstein, and L. Pusztai (2022). Cancer Relevance of Human Genes, *Journal of the National Cancer Institute*, 114 (7), pp. 988–995.

**H. Mohsen**, V. Gunasekharan, T. Qing, M. Seay, Y. Surovtseva, S. Negahban, Z. Szallasi, L. Pusztai, and M. Gerstein (2021). Network propagation-based prioritization of long tail genes in 17 cancer types, *Genome Biology*, 22, 287.

T. Qing, **H. Mohsen**, M. Marczyk, Y. Ye, T. O'Meara, H. Zhao, J.P. Townsend, M. Gerstein, C. Hatzis, Y. Kluger and L. Pusztai (2020). Germline variant burden in cancer genes correlates with age at diagnosis and somatic mutation burden, *Nature Communications*, 11, 2438.

**H. Mohsen** (2020). Race and Genetics: Sombre History, Troubled Present. *Yale Journal for Biology and Medicine*, 93 (1), pp. 215–219.

**H. Mohsen**, J. Warrell, M.R. Min, S. Negahban, and M. Gerstein (2020). Weight-based Neural Network Interpretability using Activation Tuning and Personalized Products, *Machine Learning in Computational Biology Workshop (MLCB'20)*.

M. Amodio, D. van Dijk, K. Srinivasan, W.S. Chen, **H. Mohsen**, K.R. Moon, A. Campbell, Y. Zhao, X. Wang, M. Venkataswamy, A. Desai, V. Ravi, P. Kumar, R. Montgomery, G. Wolf, and S. Krishnaswamy (2019). Exploring Single-Cell Data with Deep Multitasking Neural Networks, *Nature Methods*, 16, pp. 1139–1145.

S. Lou, K.A. Cotter, T. Li, J. Liang, **H. Mohsen**, J. Liu, J. Zhang, S. Cohen, J. Xu, H. Yu, M. Rubin, and M. Gerstein (2019). GRAM: A generalized model to predict the molecular effect of a non-coding variant in a cell-type specific manner, *PLoS Genetics*, 15 (8): e1007860.

F.C.P. Navarro, **H. Mohsen**, C. Yan, S. Li, M. Gu, W. Meyerson, and M. Gerstein (2019). Genomics and data science: an application within an umbrella, *Genome Biology*, 20 (109).

J. Warrell, **H. Mohsen**, and M. Gerstein (2018). Rank Projection Trees for Multilevel Neural Network Interpretation, *NeurIPS Machine Learning for Health Workshop (NeurIPS'18 ML4H)*.

**H. Mohsen**, H. Tang, and Y. Ye (2017). DNPipe: Improving De Novo Metatranscriptome Assembly via Machine Learning Algorithms, *International Journal of Computational Biology and Drug Design (IJCBD)*, 2 (10), pp. 91-107.

**H. Mohsen**, H. Kurban, K. Zimmer, M. Jenne, and M. Dalkilic (2015). Red-RF: Reduced Random Forests using priority voting dynamic data reduction, *IEEE International Congress on Big Data (IEEE BigData Congress'15)*, pp. 118-125.

**H. Mohsen**, H. Kurban, M. Jenne, and M. Dalkilic (2014). A New Set of Random Forests with Varying Dynamic Data Reduction and Voting Techniques, *IEEE International Conference on Data Science and Advanced Analytics (IEEE DSAA'14)*, pp. 309-405.

N. Mansour and **H. Mohsen** (2014). Computational Evaluation of Protein Energy Functions, *International Conference on Intelligent Computing (ICIC'14)*, *Lecture Notes in Computer Science (LNCS): Intelligent Computing in Bioinformatics*, 8590, pp. 288-299.

## TECHNICAL SKILLS

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**Programming:** Python (pandas, numpy, PyTorch, TensorFlow), R , Java

**Other:** UNIX, Hadoop, MPI, Adobe Photoshop and Illustrator

## AWARDS & FELLOWSHIPS

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CCNY-MSKCC Partnership Fellowship	2023-2024
American Society of Human Genetics (ASHG) Reviewers' Choice Abstract Award	Nov 2023
American Association for Cancer Research (AACR) Scholar-in-Training Award	Sep 2020
Franke Fellowship in Science and the Humanities	2019-2020
Gruber Science Fellowship	2016-2019
Nicholas Jabr Fellowship	2016-2017
Fulbright Scholarship	2013-2015
Erasmus Mundus Scholarship	2012-2013
2 <sup>nd</sup> rank, Nokia-NNA contest for mobile application development in Lebanon	Jul 2010
Extreme Programmer Award, ACM LCPC Contest, Beirut, Lebanon	Jul 2010
Lebanese American University Honor List	2009-2011
Lebanese American University Merit Scholarship	2008-2011