HUSSEIN MOHSEN

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EDUCATION

Yale University, New Haven, CT, USA

Doctor of Philosophy (PhD) in Computational Biology & Bioinformatics   **Aug 2016-May 2022**
Committee: Mark Gerstein, Lajos Pusztai, 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

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

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: Somber 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 (IJCBDD)*, 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

Programming: Python (pandas, numpy, PyTorch, TensorFlow), R , Java
Other: UNIX, Hadoop, MPI, Adobe Photoshop and Illustrator

AWARDS & FELLOWSHIPS

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**
Extreme Programmer Award, ACM LCPC Contest, Beirut, Lebanon	**Jul 2010**
Lebanese American University Honor List	**2009-2011**
Lebanese American University Merit Scholarship	**2008-2011**