

## HUSSEIN MOHSEN

hussein.mohsen@yale.edu | <http://www.husseinmohsen.com>

### EDUCATION

---

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

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

**Aug 2016-present**

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

**Thesis Title:** Network Approaches to the Study of Genomic Variation in Cancer

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

**Jan-Dec 2019**

*Graduate Certificate in Public Humanities*

**Jan 2021-present**

**Certificate Capstone Project:** A Pedagogical History of the “Population”

Concept in Genetics from Mid-19th Century to Current Ancestry Tests

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

**Aug 2013-May 2015**

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

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

**Sep 2012-Aug 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*

### PUBLICATIONS

---

#### *Research Papers*

**H. Mohsen**, V. Gunasekharan, T. Qing, M. Seay, Y. Surovtseva, S. Negahban, Z. Szallasi, L. Puzstai, 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. Puzstai (2020). Germline variant burden in cancer genes correlates with age at diagnosis and somatic mutation burden, *Nature Communications*, 11, 2438.

**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.

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.

**H. Mohsen** (2014). A Model to Measure Inter-communication between Segregated Communities, *IEEE International Conference on Behavioral, Economic and Social Computing (IEEE BESC'14)*, pp. 1-6.

#### ***Under Review***

J. Warrell, **H. Mohsen**, and M. Gerstein. Compression-based Network Interpretability Schemes, *bioRxiv*: [358226](https://doi.org/10.1101/358226).

J. Warrell\*, H. Mohsen\*, and M. Gerstein. Interpretability and Implicit Model Semantics in Biomedicine and Deep Learning.

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. Cancer Relevance of Human Genes, *bioRxiv*: [429823](https://doi.org/10.1101/429823).

## *Reviews and Commentary*

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

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).

## **WORK EXPERIENCE**

---

<b>New Books Network <i>History of Science</i> Podcast – Host</b>	<b>Sep 2021-present</b>
<b>Yale University, New Haven, CT, USA – Teaching Fellow</b>	<b>Jan-May 2019, Jan-May 2020</b>
▪ Courses: Biomedical Data Science (Spring'19 and '20)	
<b>Lattice Engines, Inc., San Mateo, CA, USA - Research Engineer</b>	<b>Jun 2015-Jul 2016</b>
▪ Machine Learning R&D on imputation in sparse datasets	
<b>Indiana University, Bloomington, IN, USA - Associate Instructor</b>	<b>Aug 2013-May 2015</b>
▪ Courses: Data Mining (Spring'15) and Discrete Mathematics (Fall'13 and Spring '14)	
<b>CCT International, Beirut, Lebanon - Software Developer</b>	<b>Mar 2011-Aug 2012</b>

## **SKILLS**

---

**Programming:** Python, R, TensorFlow, Java, MPI

**Web Development:** Javascript, PHP, HTML, CSS

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

## **AWARDS & HONORS**

---

<b>American Association for Cancer Research (AACR) Scholar-in-Training Award</b>	<b>Oct 2020</b>
<b>Franke Fellowship in Science and the Humanities</b>	<b>2019-2020</b>
<b>Gruber Science Fellowship</b>	<b>2016-2019</b>
<b>Fulbright Scholarship</b>	<b>2013-2015</b>
<b>Erasmus Mundus Scholarship</b>	<b>2012-2013</b>
<b>Best Computer Science Capstone Project Award at LAU (class of 2011)</b>	<b>Jul 2011</b>
<b>2<sup>nd</sup> rank, Nokia-NNA contest for mobile application development in Lebanon</b>	<b>Jul 2010</b>
<b>Extreme Programmer Award, ACM LCPC Contest, Beirut, Lebanon</b>	<b>Jul 2010</b>
<b>Lebanese American University Honor List</b>	<b>2009-2011</b>
<b>Lebanese American University Merit Scholarship</b>	<b>2008-2011</b>

## *REFERENCES*

---

**Available upon request**