**HUSSEIN MOHSEN**

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***EDUCATION***

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

*Doctor of Philosophy (PhD) in Computational Biology & Bioinformatics* **Aug 2016-present**

***Committee:*** Mark Gerstein, Lajos Pusztai, 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. 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**, 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 (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.**

**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://www.biorxiv.org/content/10.1101/2020.10.27.358226v1.full).

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://www.biorxiv.org/content/10.1101/2021.02.04.429823v1.full).

**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***

**New Books Network *History of Science* Podcast** – *Host* **Sep 2021-present**

**Yale University, New Haven, CT, USA** – *Teaching Fellow* **Jan-May 2019, Jan-May 2020**

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

**Lattice Engines, Inc., San Mateo, CA, USA** - *Research Engineer* **Jun 2015-Jul 2016**

* Machine Learning R&D on imputation in sparse datasets

**Indiana University, Bloomington, IN, USA** - *Associate Instructor*  **Aug 2013-May 2015**

* Courses: Data Mining (Spring’15) and Discrete Mathematics (Fall’13 and Spring ‘14)

**CCT International, Beirut, Lebanon** - *Software Developer* **Mar 2011-Aug 2012**

***SKILLS***

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

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

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

***AWARDS & HONORS***

**American Association for Cancer Research (AACR) Scholar-in-Training Award Oct 2020**

**Franke Fellowship in Science and the Humanities 2019-2020**

**Gruber Science Fellowship** **2016-2019**

**Fulbright Scholarship** **2013-2015**

**Erasmus Mundus Scholarship** **2012-2013**

**Best Computer Science Capstone Project Award at LAU** **(class of 2011)** **Jul 2011**

**2nd 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**

***REFERENCES***

**Available upon request**