Sara Mostafavi, PhD

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EMPLOYMENT

Sept 2020-	Associate Professor, Paul G. Allen School of Computer Science and Engineering, University of Washington (UW), Seattle, USA
Sept 2020-	Adjunct Faculty, Genome Sciences, UW, Seattle, USA
Sept 2020-	Senior Data Science Fellow, eScience Institute, UW, Seattle, USA
Dec 2018-2020	Faculty member, Vector Institute, Toronto, Canada
Jan 2015-2020	Assistant Professor, University of British Columbia (UBC), Department of Statistics, Department of Medical Genetics, Vancouver, Canada
Jan 2015-2020	Scientist, Center for Molecular Medicine and Therapeutics at UBC

Honors

2018	Canadian Institute for Advanced Research (CIFAR), Artificial Intelligence (AI) Chair
2015-present	Fellow, Canadian Institute for Advanced Research, Child and Brain Development
2015-2020	Canada Research Chair (CRC II) in Computational Biology

ACADEMIC AND TRAINING BACKGROUND

PDF 2014	Harvard Medical School (Dept. Immunology; mentor: Christophe Benoist)
PDF 2011-2014	Stanford University (Dept. Computer Science; mentor: Daphne Koller)
PhD 2006-2011	University of Toronto (Dept. Computer Science; advisor: Quaid Morris)
MS 2004-2006	Queen's University (Dept. Computing Sciences; advisor: Parvin Mousavi)
BSc 2001-2004	University of Toronto (Computer Science and Life Sciences)
1999-2001	Queen's University (Life Sciences) – transferred to UofT in 2001

SELECTED PUBLICATIONS

Trainees: underlined, co-first or co-senior authorship: *
Complete list: https://scholar.google.ca/citations?user=nBL0J6kAAAAJ&hl=en
Google scholar: H-index: 38; citations (all): 16117

(Selected) Published:

1. Novakovsky G, Saraswat M, Fornes O, **Mostafavi S**, Wasserman WW (2021). Biologically relevant transfer learning improves transcription factor binding prediction. *Genome Biology.*

2. Beebe-Wang, N, Celik S, Weinberger E, Sturmfels P, De Jager PL, **Mostafavi S**[$], Lee SI[$]**.** Unified AI framework to uncover deep interrelationships between gene expression and Alzheimer's disease neuropathologies (2021). *Nature Communications*.

3. Maslova, A., R. Ramirez, K. Ma, H. Schmutz, C. Wang, C. Fox, B. Ng, C. Benoist[$], and **Mostafavi S**[$] (2020). Learning immune cell differentiation. PNAS.

4. Patrick E, Taga M, Ergun A, Ng B, Casazza W, Cimpean M, Yung C, Schneider JA, Bennett DA, Gaiteri C, De Jager PL[$], Bradshaw EM[$], **Mostafavi S**[$]**.** (2020) Deconvolving the contributions of cell-type heterogeneity on cortical gene expression. *PLOS Computational Biology.*

5. Graham E, Richmond PA, Tarailo-Graovac M, Engelke U, Kluijtmans L, Coene K, Wevers RA, Wasserman WW, van Karnebeek C, **Mostafavi S**. (2020). metPropagate: network-guided propagation of metabolomic information for prioritization of metabolic disease genes. *npj Genomic Medicine*

6. Yoshida H, Lareau C, …, **Mostafavi S**[$]**,** Buenrostro J[$], Benoist C[$]. The cis-Regulatory Atlas of the Mouse Immune System. (2019). *Cell.*

7. Ng B, Casazza W, Patrick E, Tasaki S, Novakovsky G, Felsky D, Ma Y, Bennett DA, Gaiteri C, De Jager PL, **Mostafavi S**. (2019) *Using transcriptomic hidden variables to infer context-specific genotype effects in the brain. American Journal of Human Genetics.*

8. **Mostafavi S***, Gaiteri C*, Sullivan SE, …, Young-Pearse TL, Bennett DA, De Jager PL. A molecular network of the aging human brain provides insights into the pathology and cognitive decline of Alzheimer's disease. (2018). *Nature Neuroscience.*

9. Ng B, White CC, Klein HU, Sieberts SK, McCabe C, Patrick E, Xu J, Yu L, Gaiteri C, Bennett DA, **Mostafavi S**[$]**,** De Jager PL[$] (2017). An xQTL map integrates the genetic architecture of the human brain's transcriptome and epigenome. *Nature Neuroscience.*

10. **Mostafavi S***, Yoshida H*, Moodley D, …, Mathis D, Benoist C and the Immunological Genome Project Consortium. (2016). Parsing the interferon transcriptional network and its disease associations. *Cell.*

11. Pierson E, the GTEx Consortium, Koller D, Battle A[$], **Mostafavi S**[$]**.** (2015) Sharing and specificity of co-expression networks across 35 human tissues. *PLOS Computational Biology.*

12. Raj T, Rothamel K, **Mostafavi S**, Ye C, Lee M, Replogle J, Von Korff A, Imboya S, McCabe C, Okada Y, Patsapolous N, Lee M, Wood I, Mathis D, Hafler D, Koller D, Regev A, Hacohen N, Benoist C*, Stranger BE*, De Jager PL*. (2014). Polarization of the effects of autoimmune and neurodegenerative risk alleles in leukocytes. *Science.*

13. Levinson DF, **Mostafavi S**, Milaneschi, Y, Rivera, M, Ripke S, Wray NR, Sullivan, PF. (2014) Genetics studies of major depressive disorder: Why are there no GWAS findings, and what can we do about it? *Biological Psychiatry.*

14. **Mostafavi S**, Battle A, Zhu X, …, , Levinson D. (2013). Type I interferon signaling genes in recurrent major depression: increased expression detected by whole-blood RNA sequencing. *Molecular Psychiatry*

15. Battle A, **Mostafavi S**, Zhu X, Potash JB, Weissman MW, Mc-Cormick C, Haudenschild CD, Beckman K, Shi J, Mei R, Urban AE, Montgomery SB, Levinson D, Koller D. (2013). Characterizing the genetic basis of transcriptome diversity through RNA-sequencing of 922 individuals. *Genome Research.*

16. **Mostafavi S**, Battle A, Zhu X, Urban AE, Levinson D, Montgomery SB, Koller D. (2013). Normalizing RNA-sequencing data by modeling hidden covariates with prior knowledge. *PLOS ONE.*

17. **Mostafavi S**, Goldenberg A, Morris Q. (2012). Labeling nodes using three degrees of propagation. *PLOS ONE*

18. **Mostafavi S**, Ray D, Warde-Farley D, Grouios C, Morris Q. (2008) GeneMANIA: A real-time multiple association network integration algorithm for predicting gene function. *Genome Biology*.

SELECTED RESEARCH FUNDING

National Institutes of Health (NIH) U01 (sub-contract PI: Sara Mostafavi). *Multi-omic network-directed proteoforom discovery, dissection and functional validation to prioritize novel AD therapeutic targets*. 2018-2023.

NIH, R24 (sub-contract PI: Sara Mostafavi). *ImmGen: Gene expression in immune cells.* 2017-2022.

NIH, R01 (sub-contract PI: Sara Mostafavi). *Identifying the molecular systems networks, and key molecules that underlie cognitive resilience.* 2018-2022.

Canada Research Chair (Tier II) (PI). Chair in Computational Biology. 2015-2020.

Genome Canada, Large-Scale Applied Science Project (LSARP*)* (co-Investigator). *Childhood asthma and the microbiome—precision health for life: The Canadian Healthy Infant Longitudinal Development (CHILD) study.* 2018-2023.

Genome Canada, LSARP (co-Investigator). *Care4Rare-Solve: Multi-omic based diagnosis of rare disease.* 2018-2023.

Natural Sciences and Engineering Research of Canada (NSERC), Discovery Grant (PI). *Integrating multiple types of genomics data to identify meaningful associations.* 2016-2021.

Canadian Institute for Advanced Research (CIFAR) (PI). Child and Brain Development program. Research Fellow Funds. 2019-2024.

SELECTED INVITED PRESENTATIONS

2022 Dept. Computer Science, University of Cambridge, UK (virtual)
2022 Keynote, Quantitative Biology (qBio) conference, Honolulu, Hawaii
2021 Computational Biology & Bioinformatics Program, Duke University, Durham, NC (virtual)
2021 Cell Circuits & Epigenomics Seminar Series, Broad Institute, Boston, MA (virtual)
2021 Dept. Biostatistics and Medical Informatics, University of Wisconsin-Madison (virtual)
2021 ImmuneAI Symposium (virtual)
2021 Models, Inference, and Algorithm (MIA) Seminars, Broad Institute and MIT (virtual)
2021 Invent the Future: AI Scholars Program (virtual)
2020 QB Seminar Series, Cold Spring Harbor Labs (virtual)
2020 Keynote, RECOMB Regulatory Genomics (virtual)
2020 Keynote, RegSys COSI, Intelligence Systems for Molecular Biology (ISMB) (virtual)
2020 Department of Systems Biology, Harvard Medical School, Boston, MA.
2020 School of Computer Science and Engineering, University of Washington, Seattle
2020 Department of Neurology, Columbia University, NY.
2019 Gladstone Institute, University of California, San Francisco (UCSF), CA.
2019 Nature Next Generation Genomics Conference at NYU, NY.
2019 Ludmir Center for Neuroinformatics, McGill University, Montreal
2019 Center for Artificial Intelligence and Medicine, University of Montreal, Montreal.

2019 Department of Biostatistics, University of Washington, Seattle.
2019 EMBL-EBI Industry and Academia Partnership: Neuroinformatics.
2019 Department of Computer Science, Boston University. Boston.
2018 Princess Margaret Hospital Research Center, Toronto, Canada
2018 Department of Human Genetics, University of California Los Angeles (UCLA), USA
2018 Women's Brain Initiative Symposium at Brigham Women's Hospital , Boston, USA
2018 Biogen Inc, Boston, MA, USA

TEACHING

2022	Computational Genomics (CSE529), Paul G. Allen School of Computer Science and Engineering, University of Washington
2022	Computational Biology Capstone (CSE428), Paul G. Allen School of Computer Science and Engineering, University of Washington
2021	Seminars in Machine Learning in Computational Biology (CSE599), Paul G. Allen School of Computer Science and Engineering, University of Washington
2020	Techniques of Statistical Consulting (STAT450), Dept. Statistics, University of British Columbia
2015-2020	Statistics for High-Dimensional Biology (STAT540), Dept. Statistics, University of British Columbia

SELECTED PROFESSIONAL ACTIVITIES

Advisory Board
- Scientific Advisory Board, Canadian Institute for Advance Research (CIFAR), Pan-Canadian AI Strategy

Journal Editorial Board
- Associate Editor, Cell Human Genomics and Genetics Advances, 2021-present
- Senior Editorial Board Member, Journal of Computational Biology, 2020-present

Conference Chairing and Organization:
- Co-founder and Chair Machine Learning in Computational Biology (MLCB) Conference 2019-present
- Area Chair: Communities of Special Interest (COSI) at ISMB 2020
- Co-organizer: BIRS meeting on Statistical and Computational Challenges Arising from Ubiquitous Molecular Measurements 2020.
- Track co-chair: ISMB 2019
- Co-organizer: Machine Learning in Computational Biology (MLCB) workshop at NeurIPS 2013-2017
- Co-organizer: Immunological Genome Project Computational Biology Meeting 2019;

Conference Program Committee: ISMB 2013-2018; NeurIPS 2015-2020; PSB 2011-2016; RECOMB 2015-2019;

Grant Review Panels:
- Grant panel member for Canadian Institute for Health Research (CIHR) 2018, 2019, 2020
- External reader for Natural Sciences and Engineering Research Council of Canada (NSERC) 2016, 2018, 2019
- External reader for Research Council of UK 2017
- Grant panel member for National Science Foundation (NSF) 2012
- Ad-hoc reviewer for National Institute on Aging (NIA) 2017, 2018, 2019.

Education/Career Panels:

- Instructor, Invent the Future: AI Scholars Program for high-school women (virtual) 2020-2021
- Instructor, Invent the Future: AI Scholars Program for high-school women, Vancouver, Canada, 2019
- Bioinformatics Training Program at UBC, Women in STEM 2018
- Keynote for BC Children's Hospital Trainee Omics Group 2019
- Medical Genetics Graduate Student Welcome Day, Career panel member 2019
- Invited speaker for Invent The Future AI Scholar Program for high school girls 2019, 2020.

Journal Reviewing: Science, Nature Methods, Nature Communications, Nature Machine Intelligence, Genome Research, Genome Biology, Molecular Systems Biology, PLOS Genetics, PLOS Computational Biology, Annals of Applied Statistics, American Journal of Human Genetics, Biological Psychiatry, JAMA Neurology, Nucleic Acids Research, Bioinformatics, BMC Bioinformatics, Scientific Reports, PLOS ONE.