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
2006-2008	Ontario Graduate Scholarship (OGS)
2004	Discover McGill Undergraduate Research Grant

ACADEMIC 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 under my supervision or co-supervision: underlined, co-first or co-senior authorship: *
- Complete list: https://scholar.google.ca/citations?user=nBL0J6kAAAAJ&hl=en
- Google scholar: H-index: 47; citations (all): 22,843

<u>Top 10 Selected Publications:</u>

1. <u>Sasse A*</u>, <u>Ng B*</u>, <u>Spiro A*</u>, Tasaki S, Bennett D, Gaiteri C, De Jager P.L., Chinkina M[$], **Mostafavi Sara**[$] (2023). Benchmarking of deep neural networks for predicting personal gene expression from DNA sequence highlights shortcomings. *Nature Genetics (In Press).*

2. <u>Tu X</u>, Cao ZT, **Mostafavi S**[$], Ge G[$] (2022). Cross-Linked Unified Embedding for cross-modality representation learning. *NeurIPS (Oral, selected top 1%).*

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

5. <u>Ng B</u>, <u>Casazza W</u>, 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.*

6. <u>Ng B</u>, 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.*

7. **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.*

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

9. **Mostafavi S** and Morris Q*. Using the Gene Ontology hierarchy when predicting gene function. (2009) In Proceedings of Conference on Uncertainty in Artificial Intelligence (UAI).*

10. **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

Pfizer Inc Research Award (PI). *Sequence-to-function AI models for studying genetic perturbations in immune cells.* 2023-2025.

Chan Zuckerberg Initiative (CZI) (Coordinating PI). *Sequence-to-function AI models for single cell genomics*. 2023-2025

NIH, R24 (co-I) *ImmGen: Gene expression in immune cells.* 2022-2027.

National Institutes of Health (NIH) U01 (co-I). *Multi-omic network-directed proteoforom discovery, dissection and functional validation to prioritize novel AD therapeutic targets*. 2018-2023.

Canadian Institute for Advanced Research, AI Chair (PI). 2018-2020**.**

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

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

SELECTED INVITED PRESENTATIONS (Since 2020)

2023   Cornell, Machine Learning in Medicine Seminars (virtual)
2023   University of Toronto, Departmental Seminar Molecular Genetics, Toronto, ON
2023   Genetics, Bioinformatics and Systems Biology Colloquium, UCSD, San Diego, CA (virtual)
2023   Barcelona Genomics Collaboratorium Symposium (virtual)
2023   Computational Medicine Program, UNC, NC (virtual)
2023   Genome Sciences Seminar Series, University of Virginia School of Medicine, VA (virtual)
2023   NIH/NIDA Genetics and Epigenetics Cross Cutting Research, DC (virtual)
2023   Flatiron Institute, Centre for Computational Biology, New York, NY

2023   Alector Therapeutics, External Seminar Series, SF, CA
2023   Pfizer Inc, External Seminar Series, Cambridge, MA
2022   Evolution and Core Processes in Gene Expression, Kansas City, MO
2022   Computational Immunology COSI, ISMB, Madison, WI
2022   Bioinformatics Seminars, MIT (virtual)
2022   Department of Computer Science, Cambridge University (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.

TEACHING

2023	Computational Biology (CSE427), Paul G. Allen School of Computer Science and Engineering
2022-2023	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

STUDENT HONORS

- Goldwater Scholarship 2023   Alina Nuria Chandra (UW, BSc student)
- UW Herbold Scholarship 2023   Wuwei Zhang (UW, BS/MS student)
- Genome Research Cover Art 2022   Michael Vermeulen (UBC, MSc student)
- *NeurIPs*, Oral 2021   Xinming Tu (UW, CSE PhD student)
- 3MT Thesis award, Semi-finalist 2018   Emma Graham (UBC, MSc student)

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
- Genome Biology, Editor on special issue on "Interpretable AI for biology and genomics"

Conference Chairing and Organization:
- General Chair, Machine Learning in Computational Biology (MLCB) Conference, 2023
- Area Chair, ISMB 2020, 2021, 2023, 2024
- Co-organizer, plenary workshop on AI models of the human Immunome, Oct. 2022
- Co-founder Machine Learning in Computational Biology (MLCB) Conference 2019-present
- Co-organizer: BIRS meeting on Statistical and Computational Challenges Arising from Ubiquitous Molecular Measurements 2020.
- 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 2015-2023;

Grant Review Panels:
- National Institutes of Health, NHGRI Special Emphasis Panel/Scientific Review Group 2023
- 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
- Ad-hoc reviewer for National Institute on Aging (NIA) 2017, 2018, 2019.
- External reader for Research Council of UK 2017

Education/Career Panels:
- Lecture, AMCW Engineer Your Passion, event for promoting CS for URM high-school students
- Instructor, Invent the Future: AI Scholars Program for high-school women (virtual) 2020-2023
- 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.