

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: 54; citations (all): 34K

Top 10 Selected Publications:

1. Sasse A*, Chinkina M[§], **Mostafavi Sara**[§] (2024). Quick and effective approximation of in silico saturation mutagenesis experiments with first-order Taylor expansion. *iScience*.
2. Sasse A*, Ng B*, Spiro A*, 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*.
3. Tu X, Cao ZT, **Mostafavi S**[§], Ge G[§] (2022). Cross-Linked Unified Embedding for cross-modality representation learning. *NeurIPS (Oral)*.
4. 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*.

5. Yoshida H, Lareau C, ..., **Mostafavi S**[§], Buenrostro J[§], Benoist C[§]. (2019). The cis-Regulatory Atlas of the Mouse Immune System. *Cell*.
6. 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*.
7. 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*.
8. **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*.
9. **Mostafavi S**, Goldenberg A, Morris Q. (2012). Labeling nodes using three degrees of propagation. *PLOS ONE*
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

Chan Zuckerberg Initiative (CZI) (Sole PI). Unified cross-modality embedding for learning regulatory networks. 2024-2026

Pfizer Inc Research Award (Sole 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.

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

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

SELECTED INVITED PRESENTATIONS (Since 2020)

- 2024 Keynote, MLCSB COSI at ISMB, Montreal, Canada
- 2024 Simon's Institute, AI meets Science, Berkeley, CA
- 2024 Memorial Sloan Kettering Research Institute, NYC
- 2024 Columbia University, Department of Statistics, NYC
- 2024 UC Berkeley, Center for Computational Biology, CA
- 2024 Johns Hopkins University, Statistical Seminars (virtual)
- 2024 VIB Conference, Invited Speaker, Leuven Belgium
- 2024 Cold Spring Harbor Labs, Systems Biology Meeting, Invited Speaker, NY
- 2024 Broad Institute, Gene Regulation Observatory (GRO) Annual Symposium
- 2023 Cornell University, Machine Learning in Medicine Seminars (virtual)

- 2023 University of Toronto, Departmental Seminar Molecular Genetics, Toronto, ON
- 2023 UCSD, Genetics, Bioinformatics and Systems Biology Colloquium, San Diego, CA (virtual)
- 2023 Barcelona Genomics Collaboratorium Symposium (virtual)
- 2023 UNC, Computational Medicine Program, NC (virtual)
- 2023 University of Virginia School of Medicine, Genome Sciences Seminar Series, VA (virtual)
- 2023 NIH/NIDA Genetics and Epigenetics Cross Cutting Research, Invited Speaker, DC
- 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 Conference on Evolution and Core Processes in Gene Expression, Invited Speaker, MO
- 2022 ISMB Conference, Computational Immunology COSI, Invited Speaker, Madison, WI
- 2022 MIT, Bioinformatics Seminars, (virtual)
- 2022 Cambridge University, Department of Computer Science (virtual)
- 2022 Conference on Quantitative Biology (qBio) conference, Invited Speaker, Honolulu, Hawaii
- 2021 Duke University, Computational Biology & Bioinformatics Program, Durham, NC (virtual)
- 2021 Broad Institute, Cell Circuits & Epigenomics Seminar Series, Boston, MA (virtual)
- 2021 University of Wisconsin-Madison, Biostatistics and Medical Informatics Program (virtual)
- 2021 ImmuneAI Symposium (virtual)
- 2021 Broad Institute and MIT. Models, Inference, and Algorithm (MIA) Seminars, (virtual)
- 2020 Cold Spring Harbor Labs, QB Seminar Series, (virtual)
- 2020 Keynote, RECOMB Regulatory Genomics (virtual)
- 2020 Keynote, RegSys COSI, Intelligence Systems for Molecular Biology (ISMB) (virtual)
- 2020 Harvard Medical School, Department of Systems Biology, Boston, MA.

TEACHING

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

- MLCB selected oral talk 2024 (top 10%) Alexander Sasse (UW, Postdoc)
- 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 (top 10%) 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 (2022-present)

- Scientific Advisory Board, Canadian Microbiome Initiative (2024-present)

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, 2024
- 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.