

HARMON BHASIN

(224) 578-0376
harmon@cs.wisc.edu

233 W Lakelawn Pl
Madison, WI 53703

EDUCATION

University of Wisconsin-Madison, Madison, WI
Bachelor of Science
Computer Science
GPA: 3.5/4.0

Expected May 2024

RESEARCH EXPERIENCE

University of Wisconsin-Madison, Boston, MA
MIT Media Lab

Research Affiliate in the lab of Dr. Kevin Esvelt

Jan 2024-Present

Investigate the feasibility of using the blood and plasma supply for novel pathogen detection.

University of Wisconsin-Madison, Madison, WI
Wisconsin Institute for Discovery

Undergraduate Research Assistant in the lab of Dr. Sushmita Roy

Sep 2022-Present

Evaluate the performance of novel dimension reduction algorithms for single cell multi-omic data.
Predict cis-regulatory elements' interactions using dynamics of scATAC-seq along cell reprogramming trajectories.

University of Wisconsin-Madison, Madison, WI
Department of Computer Science

Undergraduate Research Assistant in the lab of Dr. Junjie Hu

Mar 2023-Dec 2023

Analyzed the in-context learning capabilities of Transformers in a multi-task setting.

University of Wisconsin-Madison, Madison, WI
Department of Management

Undergraduate Research Assistant in the lab of Dr. Stav Atir

Sep 2021-Dec 2022

Evaluated people's ability to accurately gauge their own expertise and learning. Explored the effects of reference type on politician outcomes through Facebook post data.

PUBLICATIONS

Spencer Halberg-Spencer*, **Harmon Bhasin***, Katherine P. Mueller, Junha Shin, Sunnie Grace McCalla, Elizabeth Capowski, David Gamm, Krishanu Saha, Sushmita Roy, "Simultaneous identification of cell states and gene programs with single cell orthogonal matrix tri-factorization", *Genome Biology* (2024). [In Preparation]

Harmon Bhasin, Tim Ossowski, Yiqiao Zhong, Junjie Hu, "How does Multi-Task Training Affect Transformer In-Context Capabilities? Investigations with Function Classes", *North American Chapter of the Association for Computational Linguistics (NAACL-2024)*. [[Paper](#)]

PRESENTATIONS

Harmon Bhasin*, Spencer Halberg-Spencer*, Katherine P. Mueller, Junha Shin, Sunnie Grace McCalla, Elizabeth Capowski, David Gamm, Krishanu Saha, Sushmita Roy, “Single cell orthogonal non-negative matrix tri-factorization for identification of cell type and state-specific gene expression programs”, *Conference on Regulatory & Systems Genomics with DREAM Challenges (RSGDream-2023)*. [[Oral](#)]

Harmon Bhasin, Spencer Halberg-Spencer, Katherine P. Mueller, Junha Shin, Sunnie Grace McCalla, Elizabeth Capowski, David Gamm, Krishanu Saha, Sushmita Roy, “Orthogonal non-negative matrix tri-factorization with regularization for multi-omic analysis”, *Midwest Machine Learning Symposium (MMLS-2023)*. [[Poster](#)]

PROFESSIONAL ACTIVITY & FUNDING

Subreviewer for RECOMB 2024, advised under Dr. Sushmita Roy 2023

Sophomore Research Fellowship, advised under Dr. Stav Atir 2022

LEADERSHIP EXPERIENCE

University of Wisconsin-Madison, Madison, WI
Wisconsin Biosecurity Initiative, Co-Founder & President Jan 2023-Present
Develop an organization to inform both undergraduate and graduate students on the current landscape of biosecurity. Facilitate the learning of biosecurity using reading groups, research projects, speaker events, and journal clubs.

University of Wisconsin-Madison, Madison, WI
Federal Reserve Challenge UW-Madison, President May 2022-May 2023
Refined the mission of the club to focus on applied economics and best research practices, providing 50+ students with skills necessary to conduct independent research. Proposed and conducted a career trek to New York to network with companies focused on economic research, getting approved for \$6,000 in funding.

REFERENCES

Dr. Roy Sushmita, Professor
Biostatistics and Medical Informatics
University of Wisconsin-Madison
3168 Wisconsin Institute of Discovery
(608) 316-4453
sroy@biostat.wisc.edu

Dr. Junjie Hu, Assistant Professor
Biostatistics and Medical Informatics
University of Wisconsin-Madison
4735 Medical Sciences Center
(608) 265-6118
junjie.hu@wisc.edu

Lennart Justen, Graduate Student
Media Lab
Massachusetts Institute of Technology
E15-390 20 Ames Street
(651) 336-4517
ljusten@mit.edu

Dr. Stav Atir, Assistant Professor
Management and Human Resources
University of Wisconsin-Madison
4261 Grainger Hall
(203) 809-1080
stav.atir@wisc.edu