

# Sayali A. Alatk

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## EDUCATION

### University of Wisconsin-Madison, Madison, Wisconsin USA

- Ph.D. in Computer Science, Anticipated May 2025
- Interests: interpretable machine learning, graph neural networks, attention models, optimal transport, single-cell genomics (scRNA-seq, scATAC-seq), multimodal learning, personalized functional genomics
- Committee: Daifeng Wang (advisor), Fred Sala, Yudong Chen

### Stony Brook University, Stony Brook, New York USA

- M.S. in Computer Science, May, 2020
- Master's Thesis: Detecting Smart Home Activity through Network Traffic Signatures.
- Committee: Samir Das (advisor), Amir Rahmati, Michalis Polychronakis, Vasudevan Nand

### Pune University, Pune, India

B.E. in Computer Engineering, May, 2018

## PUBLICATIONS

### Peer-reviewed papers

**Sayali Alatk**, Daifeng Wang, CMOT: Cross-Modality Optimal Transport for multimodal inference, *Genome Biology*, 24, 163, 2023

Pramod Bharadwaj Chandrashekar, **Sayali Alatk**, Jiebiao Wang, Gabriel E. Hoffman, Chenfeng He, Ting Jin, Saniya Khullar, Jaroslav Bendl, John F. Fullard, Panagiotis Roussos, Daifeng Wang, DeepGAMI: Deep biologically guided auxiliary learning for multimodal integration and imputation to improve phenotype prediction, *Genome Medicine* 15, 88 (2023)

Chirag Gupta, Jielin Xu, Ting Jin, Saniya Khullar, Xiaoyu Liu, **Sayali Alatk**, Feixiong Cheng, Daifeng Wang, Single-cell network biology characterizes cell-type gene regulation for drug repurposing and phenotype prediction in Alzheimer's disease, *PLoS Computational Biology*, 18(7): e1010287, 2022

## PROFESSIONAL EXPERIENCE

### UW-Madison, Madison, WI, USA

Research Assistant, Daifeng Wang Lab

August, 2021 - present

- Developed novel method for cross-modality imputation in single-cells
- Trained several deep learning models (e.g. MLP, graph neural networks, CNN, variational autoencoders) for classification and regression tasks
- Currently working on graph neural networks and attention models
- Experience working on large single-cell multi-omics, spatial, and, genotype data
- Assisted on several grant proposals (NIH,NSF)

### Siemens Corporate Research, Princeton, NY, USA

Research intern, Cybersecurity Research Group

May, 2019 - August, 2019

- Implemented an OCR-based homograph detection tool from literature for domain service monitoring
- Implemented new features for Siemens threat news portal

TEACHING  
EXPERIENCE

**UW-Madison**, Madison, WI, USA  
Teaching Assistant-Intro to Python

**August, 2020 - May, 2021**

POSTERS/TALKS

**Posters**

- RECOMB'2021
- ISMB'2022

**Talks**

- RSG-DREAM'2023

HONORS AND  
AWARDS

UW Madison CS Summer Research Fellowship  
Usenix Security'21 Diversity Grant  
Accepted into NSF Sponsored GREPSEC V Workshop'21

RELEVANT  
COURSEWORK

**UW-Madison Graduate**

- Machine Learning (Fred Sala)
- Mathematical Foundations of Machine Learning (Robert Nowak)
- Advanced Bioinformatics (Daifeng Wang)

SKILLS

- Languages: Python, R.
- Packages: Pytorch, Tensorflow, CUDA, Pytorch Geometric, DGL
- Applications: Anaconda, Cytoscape, Flask
- Operating Systems: Ubuntu, Windows.