

# Sayali A. Alatk

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## EDUCATION

**University of Wisconsin-Madison**, Madison, Wisconsin USA

- Ph.D. in Computer Science, December 2025 (anticipated)
- Interests: machine learning for single-cell genomics, multimodal learning, foundation models, optimal transport, graph neural networks, spatial transcriptomics, neuropsychiatric disorders
- 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 Nagen-dra

**Pune University**, Pune, India

B.E. in Computer Engineering, May, 2018

## PUBLICATIONS

### Submitted/under-review

1. Personalized Single-cell Transcriptomics Reveals Molecular Diversity in Alzheimer's Disease, *under review*, 2024  
Pramod Bharadwaj Chandrashekar\*, **Sayali Anil Alatk**\*, Noah Cohen Kalafut\*, Ting Jin\*, Chirag Gupta, Ryan Burzak, Xiang Huang, Shuang Liu, Athan Z. Li, PsychAD Consortium, Kiran Girdhar, Georgios Voloudakis, Gabriel E. Hoffman, Jaroslav Bendl, John F. Fullard, Donghoon Lee, Panos Roussos#, Daifeng Wang#,
2. NeuroTD: A Time-Frequency Based Multimodal Learning Approach to Analyze Time Delays in Neural Activities, *submitted*, 2024  
Xiang Huang, Noah Cohen Kalafut, **Sayali Alatk**, Athan Z. Li, Qiping Dong, Qiang Chang, Daifeng Wang,

### Peer-reviewed papers

1. CMOT: Cross-Modality Optimal Transport for multimodal inference, *Genome Biology*, 24, 163, 2023  
**Sayali Alatk**, Daifeng Wang,
2. DeepGAMI: Deep biologically guided auxiliary learning for multimodal integration and imputation to improve phenotype prediction, *Genome Medicine* 15, 88, 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,
3. 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  
Chirag Gupta, Jielin Xu, Ting Jin, Saniya Khullar, Xiaoyu Liu, **Sayali Alatk**, Feixiong Cheng, Daifeng Wang,

## PROFESSIONAL EXPERIENCE

**UW-Madison**, Madison, WI, USA

Research Assistant, Daifeng Wang Lab

**August, 2021 - present**

- Developing interpretable machine learning methods for single-cell genomics (e.g., scRNA-seq, scATAC-seq), spatial transcriptomics 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 homoglyph 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 (ordered by proficiency): Pytorch, Pytorch Geometric, JAX, Tensorflow, DGL
- Applications: Visual Studio Code, Anaconda, RStudio, Cytoscape
- Operating Systems: Ubuntu, Windows