Dr. Sarah Chen, PhD

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CURRENT POSITION

Postdoctoral Research Fellow

Broad Institute of MIT and Harvard | 2021 – Present

- Developing computational pipelines for multi-modal single-cell analysis in Alzheimer's disease models
- Led collaborative project with 3 institutions studying glial cell heterogeneity
- Secured K99/R00 Pathway to Independence Award ($800,000)
- Mentored 2 graduate students and 1 undergraduate researcher

EDUCATION

PhD, Computational Biology

University of California, San Francisco | 2016 – 2021

- Dissertation: "Machine Learning Approaches to Single-Cell Transcriptomic Analysis in Neurodegenerative Disease"

BS, Biochemistry, Magna Cum Laude

University of Michigan | 2012 – 2016

PREVIOUS RESEARCH EXPERIENCE

Graduate Researcher

UCSF Memory and Aging Center | 2016 – 2021

- Developed novel clustering algorithms for single-cell RNA-seq data
- Established mouse colony and performed stereotaxic surgeries
- Collaborated with clinicians on human brain tissue analysis

PUBLICATIONS

1. **Chen S**, Martinez R, et al. (2024) "Single-cell atlas of the aging human brain." *Nature Neuroscience*. **First author.**
2. **Chen S**, Wong K, et al. (2023) "Computational methods for spatial transcriptomics." *Nature Methods*. **First author.**
3. Park J, **Chen S**, et al. (2023) "Microglial subtypes in neurodegeneration." *Cell*. Second author.
4. **Chen S**, et al. (2022) "Machine learning in single-cell biology." *Annual Review of Biomedical Data Science*. First author, review.
5. Liu M, **Chen S**, et al. (2021) "Astrocyte diversity in Alzheimer's disease." *Neuron*. Co-author.
6. **Chen S**, et al. (2020) "scBioCluster: A novel clustering approach." *Bioinformatics*. **First author.**

TECHNICAL EXPERTISE

Computational: Python, R, single-cell analysis (Scanpy, Seurat), machine learning (PyTorch, scikit-learn), cloud computing (AWS, GCP)

Experimental: Single-cell RNA-seq, spatial transcriptomics (10x Visium, MERFISH), CRISPR screening, mouse models, stereotaxic surgery

Data: Large-scale dataset integration, pipeline development, statistical analysis

AWARDS & FUNDING

• NIH K99/R00 Pathway to Independence Award (2023)
• Broad Institute NextGen Award (2022)
• NSF Graduate Research Fellowship (2016–2021)

OPEN SCIENCE & COMMUNITY

• All code and datasets publicly available on GitHub and GEO
• Contributor to Scanpy open-source project
• Organizer, Boston Single-Cell Analysis Meetup
• Volunteer, STEM outreach program for underrepresented high school students