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MICHAEL D. SWEENEY

mikeswny@umich.edu michael-sweeney Personal website

EDUCATION

PhD, Biostatistics (in progress) August 2021 - Present
University of Michigan, Ann Arbor, MI

BS, Computer Science & Applied Mathematics and Statistics August 2017 - May 2021
Stony Brook University, Stony Brook, NY, *summa cum laude*

RESEARCH EXPERIENCE

Graduate Student Research Assistant August 2021 - Present
University of Michigan Department of Biostatistics, Ann Arbor, MI
Advisor: Dr. Hyun Min Kang

Undergraduate Student Research Assistant August 2019 - August 2021
Department of Biomedical Informatics, Stony Brook University, Stony Brook, NY
Advisor: Dr. Richard Moffitt

PUBLICATIONS

1. **Sweeney, MD.** and Kang, HM. (2026) "Practical utility of sequence-to-omics models for improving the reproducibility of genetic fine-mapping". *biorXiv*, 2026.02.04.703796. (preprint)

2. Ciotlos, DL., Hanks, SC., Varshney, A., Erdos, MR., Manickam, N., Stringham, HM., Orchard, P., Hill-Burns, EM., Narisu, N., Bonnycastle, LL., **Sweeney, MD.**, Saramies, J., Laakso, M., Tuomilehto, J., Lakka, TA., Mohlke, KL., Boehnke, M., Collins, FS., Koistinen, HA., Parker, SCJ., Scott, LJ. (2025) "Inverse directions of association of higher physical activity and higher insulin resistance with human skeletal muscle cell type abundance and fiber-type-level gene expression". *biorXiv*, 2025.10.27.683567. (preprint)

3. Johnson, KA., Jones, F.K., Ghadiali, R.S., Lee, G., Torre-Healy, LA., **Sweeney, MD.**, Moffitt, RA., Mamchaoui, K., Ricci, E., Young, I., Pisconti, A. (2025) "Enhancement of Prednisolone efficacy and safety in Duchenne muscular dystrophy via neutrophil elastase inhibition". *biorXiv*, 2025.02.26.640472. (preprint)

4. Hanks, SC., Mauger, AS., Varshney, A., Ciotlos, DL., Manickam, N., Narisu, N., Shumway, AJ., Orchard, P., Erdos, MR., **Sweeney, MD.**, Okamoto, J., Jackson, AU., Stringham, HM., Bonnycastle, LL., Zhou, X., Lakka, TA., Mohlke, KL., Tuomilehto, J., Laakso, M., Boehnke, M., Sethupathy, P., Collins, FS., Koistinen, HA., Parker, SCJ., Scott, LJ. (2025) "Extensive differential gene expression and regulation by sex in human skeletal muscle". *Cell Genomics*, **5**, 100915.

5. **Sweeney, MD.**, Torre-Healy, LA., Ma, VL., Hall, MA., Chrastecka, L., Yurovsky, A., Moffitt, RA. "FaStaNMF: a fast and stable non-negative matrix factorization for gene expression". (2023) *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, **21**, 1633-1644.

ORAL PRESENTATIONS

1. "Communicating Your Health Data Science". Big Data Summer Immersion at Yale. July 17, 2025. New Haven, CT.

2. "Do deep genome language models help pinpoint causal variants in statistically fine-mapped loci?". American Society of Human Genetics Conference. November 7, 2024. Denver, CO.

3. "FaStaNMF: a Fast and Stable Non-negative Matrix Factorization for Gene Expression". Asia Pacific Bioinformatics Conference. April 28, 2022. Virtual.

POSTER PRESENTATIONS

1. "Practical utility of AI-based sequence-to-omics models for improving the reproducibility of genetic fine-mapping". Michigan Institute for Data and AI in Society (MIDAS) AI in Research Symposium. March 31, 2026. Ann Arbor, MI.

2. "anQChor: Leveraging molecular QTLs to enhance quality control and reproducibility in multi-omics analysis". American Society of Human Genetics Conference. October 16, 2025. Boston, MA.

3. "*In silico* Automatic Gene Expression Deconvolution (AGED) pipeline using non-negative matrix factorization and gene set enrichment analysis". Stony Brook University Undergraduate Research & Creative Activities (URECA) Symposium. May 5, 2021. Virtual.

TEACHING EXPERIENCE

Genome Science Training Program (GSTP) Course Facilitator
Department of Biostatistics, University of Michigan, Ann Arbor, MI

- BIOSTAT 601: Probability and Distribution Theory (Fall 2025)
- BIOSTAT 602: Biostatistical Inference (Winter 2024, Winter 2025)

Undergraduate Student Teaching Assistant
Department of Applied Mathematics & Statistics, Stony Brook University, Stony Brook, NY
Advisor: Dr. Yan Yu

- AMS 310: Survey of Probability and Statistics (Spring 2020)
- AMS 210: Applied Linear Algebra (Spring 2021)

AWARDS & SUPPORT

Empowering Research with AI Award March 2026
AI Institutes at Michigan, University of Michigan, Ann Arbor, MI

Genome Sciences Training Program (GSTP) T32HG000040 August 2021 - August 2024
University of Michigan, Ann Arbor, MI

Award of Honor in Applied Mathematics and Statistics May 2021
Department of Applied Mathematics and Statistics, Stony Brook University, Stony Brook, NY

Chhabra-URECA Fellowship Summer 2020
Stony Brook University, Stony Brook, NY

Outstanding Teaching Assistant in Applied Mathematics and Statistics May 2020
Department of Applied Mathematics and Statistics, Stony Brook University, Stony Brook, NY

Stony Brook University Academic Achievement Award Fall 2017, Spring 2020
Stony Brook University, Stony Brook, NY

Dean's List Fall 2017 - Spring 2021
Stony Brook University, Stony Brook, NY

Stony Brook University Presidential Scholarship Fall 2017 - Spring 2021
Stony Brook University, Stony Brook, NY

VOLUNTEER SERVICE

Letters to a Pre-Scientist (LPS) Pen Pal August 2023 - Present

School of Public Health (SPH) Admissions Ambassador September 2021 - May 2025
School of Public Health, University of Michigan, Ann Arbor, MI

Biostatistics Student Recruitment Committee August 2023 - June 2024
Department of Biostatistics, University of Michigan, Ann Arbor, MI

Biostatistics Student Peer Mentor August 2023 - May 2024
Department of Biostatistics, University of Michigan, Ann Arbor, MI

Health Data Science Committee December 2023 - April 2024
Department of Biostatistics, University of Michigan, Ann Arbor, MI

Biostatistics Faculty Meetings Student Representative September 2023 - April 2024
Department of Biostatistics, University of Michigan, Ann Arbor, MI