Elliott Williams

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PROFESSIONAL SUMMARY

A highly motivated and skilled data analyst with extensive experience in bioinformatics and single-cell sequencing technologies. Proven ability to develop and implement complex data analysis pipelines, manage cloud-based resources, and provide comprehensive support to research teams. Proactive and collaborative with a strong commitment to advancing scientific discovery through data-driven insights.

TECHNICAL SKILLS

- Programming Languages: Python, R, Bash
- Bioinformatics Tools and Technologies: Single-cell RNA sequencing, ATAC-seq, CITE-seq, ASAP-seq, BCR and TCR libraries, Cell Ranger, Seurat, Scanpy, CellRank, SCPA, MOFA, CellxGene, ShinyCell
- Pipeline Development: Developed and maintained a multimodal mapping and post-processing pipeline for single-cell sequencing data
- Cloud Computing: AWS (EC2, S3, CLI), experience deploying and managing cloud-based data portals
- High-Performance Computing: Familiar with HPC concepts, job schedulers (SLURM), clusters
- Data Analysis: Experience with data preprocessing, quality control, normalization, batch correction, clustering, trajectory inference, differential expression analysis, gene regulatory network inference, differential abundance analysis, imputation
- Software Development: Experience with Git version control, debugging, and troubleshooting
- Mathematics: Strong foundation in calculus, linear algebra, Fourier transforms, graph theory, and entropy

TRANSFERABLE SKILLS

- Collaboration and Support: Proven ability to aid collaborators with data analysis, experimental design, and troubleshooting
- Leadership and Team Development: Experience managing onboarding and training for new team members, promoting FAIR data management practices
- Strategic Resource Management: Advised on compute costs and developed a hybrid solution for spatial gene expression sequencing
- Communication: Effectively communicated technical information to both technical and non-technical audiences
- Problem-Solving: Demonstrated ability to overcome challenges and develop innovative solutions

PROFESSIONAL EXPERIENCE

Emory University School of Medicine, Remote May 2021-Present
Bioinformatics Scientist (PIs: Dr. Chris Scharer, Dr. Jeremy Boss, Dr. Jacob Kohlmeier)

- Developed and maintained a multimodal mapping and post-processing pipeline for single-cell sequencing data, resulting in **increased efficiency and research project acceleration**.
- Successfully **deployed and managed cloud-based data portals**, empowering researchers with independent data exploration and analysis capabilities.
- Provided comprehensive support to collaborators, including data analysis, experimental design optimization, and troubleshooting, **fostering a collaborative research environment**.
- **Led onboarding and training initiatives** for new bioinformatics team members, ensuring their successful integration and promoting the use of FAIR data management practices.
- **Advised PIs on strategic resource allocation** for compute costs, including developing a hybrid solution for spatial gene expression sequencing that balanced immediate needs with long-term investment.

The University of Georgia, Athens, GA September 2016-February 2022
Research Assistant: High Velocity Clouds in the Magellanic Stream (PI: Dr. Robin Shelton)

- **Proposed and published original idea** of drafting as a solution to a discrepancy between observations and theory of the survival of star-formation fueling clouds in violent interstellar environments.
- Commanded **300-CPU/1TB RAM job submissions** to SLURM scheduler on High-Performance Computing (HPC) clusters.
- Built foundational **expertise working in Linux/Unix environments**.

EDUCATION

The University of Georgia, **Honors Program,** Athens, GA July 2020
Bachelor of Science: Astrophysics

ACHIEVEMENTS

- Presented at Immunology 2022, 2023 American Association of Immunologists (AAI) meetings
- Awarded talk at Immunology 2022 (along with AAI Trainee Abstract award)
- Presented at 232nd American Astronomical Society meeting

PUBLICATIONS IN PREP

1. Elliott, J.E., **Williams, M. E.**, Laccetti, K., Kost, K.N., Mattingly, C., Thomas, J. K., Lobby, J. L., Michalets, S. E., Uddbäck, I.,Swaims-Kohlmeier, A., Mehta, A., Scharer, C.D., and Kohlmeier, J. E. (2025+). Transcriptional and Epigenetic Heterogeneity of Human Lung-resident Memory CD8+ T Cell Subsets.
2. French, A. J., Rockey, C. R., Le Sage, V., **Williams, M. E.**, Brown, K. M., Shephard, M. J., Jones, J. E., Rigatti, L., Kohlmeier, J. E., Hiller, N. L., and Lakdawala, S. S. (2025+). Tissue-specific responses and microbial relationships during influenza virus and Streptococcus pneumoniae co-infection in the ferret model.
3. Mattingly, C., Jimenez, A.R., **Williams, M. E.**, Lawrence, L. A., Chen T., Kost, K. N., Michalets, S. E., Lobby, J. E., Hicks, S. L., Scharer, C. D., Swaims-Kohlmeier, A., Lowen, A. C., Mehta, A., and Kohlmeier, J. E. (2025+). Differential impact of CD8+ T cell-derived interferon-g on influenza virus replication in human lung epithelial cell subsets.

PUBLICATIONS

1. Wiggins, K. J., **Williams, M. E.**, Padilla-Quirarte, H.O., Hicks, S. L., Boss, J. M., and Scharer, C. D. (2025, in production). EZH2-the repressive architect of memory B cell chromatin landscape.
2. Faliti, C. E., Van, T. T. P., Anam, F. A., Cheedarla, N., **Williams, M. E.**, Mishra, A. K., Usman, S. Y., Woodruff, M. C., Kraker, G., Runnstrom, M. C., Kyu, S., Sanz, D., Ahmed, H., Ghimire, M., Morrison-Porter, A., Quehl, H., Haddad, N. S., Chen, W., Cheedarla, S., Neish, A. S., Roback, J. D., Antia, R., Hom, J., Tipton, C. M., Lindner, J. M., Ghosn, E., Khurana, S., Scharer, C. D., Khosroshahi, A., Lee, F. E-H., Sanz, I. (2025). Disease-associated B cells and immune endotypes shape adaptive immune responses to SARS-CoV-2 mRNA vaccination in human SLE. Nature Immunology, 26, 131-145.
3. Uddbäck, I., Michalets, S. E., Saha, A., Mattingly, C., Kost, K. N., **Williams, M. E.**, Lawrence, L. A., Hicks, S. L., Lowen, A. C., Ahmed, H., Thomsen, A. R., Russell, C. J., Scharer, C. D., Boss, J. M., Koelle, K., Antia, R., Christensen, J. P., and Kohlmeier, J. E. (2024). Prevention of respiratory virus transmission by resident memory CD8+ T cells. Nature, 626, 392-400.
4. **Williams, M.E.**, Hardnett, F. P., Sheth, A. N., Wein, A. N., Li, Z. T., Radzio-Basu, J., Dinh, C., Haddad, L. B., Collins, E. M. B., Ofotokun, I., Antia, R., Scharer, C. D., Garcia-Lerma, J. G., Kohlmeier, J. E., Swaims-Kohlmeier, A. (2024). The menstrual cycle regulates migratory CD4 T-cell surveillance in the female reproductive tract via CCR5 signaling. Mucosal Immunology, 17(1), 41-53.
5. **Williams, M. E.** and Shelton, R. L. (2022). Hydrodynamics of Clustered Clouds: Drafting, Survival, Condensation, and Ablation. The Astrophysical Journal, 926(1), 36-51.
6. Shelton, R. L., **Williams, M. E.**, Parker, M. C., Galyardt, J. E., Fukui, Y., and Tachihara, K. (2022). The Long Tails of the Pegasus–Pisces Arch Intermediate Velocity Cloud. The Astrophysical Journal, 925(2), 190-202.