Margaret C. Steiner

Ph.D. Candidate, Department of Human Genetics, The University of Chicago
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Education

PhD in Human Genetics (candidate) Sept. 2020 – present
University of Chicago | Chicago, IL
Advisor: John Novembre, PhD
NSF Graduate Research Fellowship (GRFP)

B.S. in Applied Mathematics, summa cum laude Aug. 2016 – Jan. 2020
The George Washington University | Washington, DC
Minors: Biology and Bioinformatics

Publications

https://orcid.org/0000-0002-1062-1228 ^ co-first authors
https://tinyurl.com/ybrr2few

Steiner, M.C. & Novembre, J. (2022). Population genetics models for the spatial spread of adaptive alleles: a review in light of the COVID-19 pandemic. *PLoS Genetics,* 18(9): e1010391.

Steiner, M.C., Marston, J., Iñiguez, L.P., Bendall, M.L., Chiappinelli, K.B., Nixon, D.F., Crandall, K.A (2021). Locus-specific characterization of human endogenous retrovirus expression in prostate, breast, and colon cancers. *Cancer Research*, 81:3449-3460.

Bendall, M.L.^, Gibson, K.M.^, **Steiner, M.C.**, Rentia, U., Perez-Losada, M., & Crandall, K.A. (2020). HAPHPIPE: Haplotype reconstruction and real-time phylodynamics for deep sequencing of intra-patient viral populations. *Molecular Biology and Evolution*, msaa315.

Steiner, M.C., Gibson, K.M., & Crandall, K.A. (2020). Drug Resistance Prediction Using Deep Learning Techniques on HIV-1 Sequence Data. *Viruses*, 12:560. Special Issue: "Bioinformatics and Computational Approaches in Viral Genomics and Evolution."

Gibson, K.M.^, **Steiner, M.C.^**, Rentia, U., Bendall, M.L., Perez-Losada, M., & Crandall, K.A. (2020). Validation of variant assembly with HAPHPIPE from next generation sequence data from viruses. *Viruses*, 12:758. Special Issue: "Computational Biology of Viruses: From Molecules to Epidemics."

Gibson, K.M., **Steiner, M.C.**, Kassaye, S., Maldarelli, F., Perez-Losada, M., & Crandall, K.A. (2019). A 28 Year History of HIV-1 Drug Resistance and Transmission in Washington, DC. *Frontiers in Microbiology*, 10:369.

Last Updated: October 2022

Selected Honors and Awards

- National Science Foundation Graduate Research Fellowship, 2020
- Columbian College of Arts & Sciences Distinguished Scholar, Class of 2020
- Columbian College of Arts & Sciences Graduation Speaker, Class of 2020
- George Washington University Honors Scholar, Class of 2020
- Columbian College of Arts & Sciences Special Honors in Mathematics, Class of 2020
- Barry Goldwater Scholarship, 2019
- GWU Elizabeth J. Somers Women's Leadership Program, 2016-2017
- Presidential Scholarship, The George Washington University, 2016
- National Merit Scholarship, The George Washington University, 2016
- Intel International Science and Engineering Fair Finalist, 2015

Selected Presentations

Steiner, M.C.^, Rice, D.P.^, Porras, C., & Novembre, J. The spatial distribution of rare deleterious alleles: implications for study design in human genetics. American Society of Human Genetics, October 2022, Los Angeles, CA. *(Poster)*

Steiner, M.C.^, Rice, D.P.^, Porras, C., & Novembre, J. The spatial distribution of rare deleterious alleles: evolutionary modeling & implications for study design. Evolution Meetings, June 2022, Cleveland, OH. *(Talk)*

Steiner, M.C. Darwin's Weekly Seminar, University of Chicago Department of Ecology and Evolution. July 6, 2021. Title: "Population genetics models for the spatial spread of adaptive alleles: were our models ready for COVID-19?" *(Talk)*

Steiner, M.C. Improving the Reliability of Medical Smart Alarms Using Confidence Calibration. ACM Embedded Systems Week, October 2019, New York, NY. *(Talk & Poster)*

Steiner, M.C., Gibson, K.M., Kassaye, S., Maldarelli, F., Péres-Losada, M., & Crandall, K.A. A 28-Year History of HIV-1 Drug Resistance and Transmission in Washington, DC. SYNChronicity: The National Conference on HIV, HCV, STDs, & LGBT Health, April 2019, Washington, DC. *(Poster)*

Steiner, M.C., Gibson, K.M., Kassaye, S., Maldarelli, F., Péres-Losada, M., & Crandall, K.A. HIV-1 Transmission Clusters and Drug Resistance in Washington, DC. Georgetown Undergraduate Research Conference, April 2018, Washington, DC. *(Talk & Poster)*

Steiner, M.C., Gibson, K.M., Kassaye, S., Maldarelli, F., Péres-Losada, M., & Crandall, K.A. HIV-1 Transmission Clusters and Drug Resistance in Washington, DC. National Conference on Undergraduate Research, April 2018, Edmond, OK. *(Poster)*

Steiner, M.C., Yu, D., & Swartz, M.D. 2017. A Comparison of Statistical Methods for Identifying Rare Genetic Variant Associations in Familial Data. Nebraska Conference for Undergraduate Women in Mathematics, January 2018, Lincoln, NE. *(Poster)*

Teaching

The University of Chicago
Teaching Assistant, Department of Human Genetics
- Autumn 2021: Genetic Mechanisms and Evolution (Graduate; instructors John Novembre, PhD & François Spitz, PhD)
- Autumn 2022: Introduction to Human Genetics (Graduate; instructors Carole Ober, PhD, Darrel Waggoner, MD, & Marcelo Nobrega, PhD)

The George Washington University
Mathematics Tutor, Libraries and Academic Innovation (Aug. 2018 – Dec. 2019)

Employment

The George Washington University — Jan. – Aug. 2020
Research Assistant, Computational Biology Institute
Advisor: Keith A. Crandall, PhD | Washington, DC

The University of Pennsylvania — May – Aug. 2019
Research Intern, Department of Computer & Information Science
Advisors: James Weimer, PhD & Insup Lee, PhD | Philadelphia, PA

Memorial Sloan Kettering Cancer Center — June – Aug. 2018
Research Intern, Department of Epidemiology & Biostatistics
Advisor: Venkatraman Seshan, PhD | New York, NY

UTHealth School of Public Health — June – Aug. 2017
Research Intern, Department of Biostatistics
Advisor: Michael D. Swartz, PhD | Houston, TX

Outreach

University of Chicago Computational Biology Outreach
- Director (Sept. 2022 – present)

University of Chicago Human Genetics Program
- Student Representative (Sept. 2021 – present)

Expanding Your Horizons Chicago
- Volunteer Committee Co-Chair (Sept. 2022 – present)
- Volunteer Committee Member (Dec. 2021 – Sept. 2022)

Sci://Tech Exposition Science Fair
- Volunteer Judge, Senior High Technical Writing Competition (Jan. 2022)
- Volunteer Judge, Senior High Science Fair (Jan. 2021)

The GW Undergraduate Review (Undergraduate Research Journal)

- Founder, Editor in Chief (Dec. 2016 – May 2019)

The GW Association for Women in Mathematics

- President (Aug. – Dec. 2019)
- Vice President (Aug. 2017 – May 2019)

Pi Mu Epsilon (Mathematics Honor Society), DC Gamma Chapter

- Secretary (Aug. – Dec. 2019)

Technical Skills

Programming & Scripting Languages: R, Python, bash
Markup Languages: LaTeX, Markdown, RMarkdown
Graphics & Data Visualization: Adobe Illustrator, Affinity Designer, ggplot2, shiny
Other: git, anaconda, SLiM

Professional Affiliations

- Society for the Study of Evolution (2022-present)
- American Society for Human Genetics (2021-present)
- Association for Computing Machinery (2019-2020)
- Association for Women in Mathematics (2019-2020)
- Pi Mu Epsilon Mathematics Honor Society (2019-2020)