Trevor **Manz**

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Education

Harvard Medical School *Boston, MA, USA*
PhD Candidate in Bioinformatics & Integrative Genomics | Department of Biomedical Informatics *09.2019 – present*

Cambridge University *Cambridge, UK*
MPhil in Computational Biology | Department of Applied Mathematics and Theoretical Physics *10.2018 - 08.2019*

Kenyon College *Gambier, OH, USA*
BA with Distinction in Biochemistry | Member of Phi Beta Kappa | GPA: 3.96/4.0 *08.2013 - 05.2017*

Work Experience

Harvard Medical School *Boston, MA, USA*
Research Assistant *09.2019 - present*

Cancer Research UK *Cambridge, UK*
Visiting Researcher *04.2019 - 08.2019*

Harvard Medical School *Boston, MA, USA*
Visiting Postgrad Research Fellow in Biomedical Informatics *05.2018 - 09.2018*

Donald Danforth Plant Science Center *St. Louis, MO, USA*
NSF REU Summer Research Fellow *05.2016 - 08.2016*

The Ohio State University Comprehensive Cancer Center *Columbus, OH, USA*
Pelotonia Summer Research Fellow *05.2015 - 08.2015*

Honors & Awards

2019 **IEEE VIS Best Short Paper Award**
Our paper on "Periphery Plots for Contextualizing Heterogeneous Time-Based Charts" received the Best Short Paper Award at IEEE VIS.

2018 **NSF Graduate Research Fellowship**
5-year graduate fellowship totaling $138,000 from the National Science Foundation.

2018 **NCAA Postgraduate Scholarship**
1-year scholarship of $10,000 awarded to student-athletes who excel academically and athletically in their final year of competition. A total of 126 scholarships are awarded annually.

2017 **NCAC Don Hunsinger Award**
Recognizes one male sport senior student-athlete who has distinguished themself throughout their collegiate career in the areas of academic achievement, athletics excellence, service and leadership.

2016 **Barry M. Goldwater Excellence in Education Scholarship**
Merit-based scholarship of $7,500 awarded annually to about 300 college sophomores and juniors.

2016 **Elmer Graham Endowed Scholarship**
Awarded annually by Kenyon College to cover the full cost of tuition for the recipient's senior year.

2016 **Marshall Scholarship Finalist**
One of two students endorsed by Kenyon College.

Projects

Human BioMolecular Atlas Program (HuBMAP)
Harvard Medical School
HuBMAP is an NIH-funded consortium effort to develop an open and global platform to map healthy in the human body. As a part of the HuBMAP Integration, Visualization & Engagement (HIVE) Collaboratory, my research group develops visualization methods for integrating single-cell datasets generated throughout the consortia. This work has led to the - a toolkit for rendering high-resolution microscopy data directly in the web-browser – and the Vitessce (https://github.com/vitessce/vitessce) single-cell visualization framework.

4D Nucleome

Harvard Medical School

The 4D Nucleome (4DN) is a NIH-funded effort to study the three-dimensional organization of the nucleus in space and time. My work with the Center for 3D Structure and Physics of the Genome focuses on developing visualizations methods to explore the long-range interaction profiles genomic loci. I am working to integrate our HiGlass genome browser (https://github.com/higlass/higlass) into Jupyter Notebooks and support linked exploration of genomic loci embeddings.

Publications

Journal Articles

Viv: multiscale visualization of high-resolution multiplexed bioimaging data on the web
Trevor Manz, Ilan Gold, Nathan Heath Patterson, Chuck McCallum, Mark S Keller, Bruce W Herr, Katy Börner, Jeffrey M Spraggins, Nils Gehlenborg
Nat. Methods (May 2022) pp. 1–2. Nature Publishing Group, 2022

Multimodal Co-Attention Transformer for Survival Prediction in Gigapixel Whole Slide Images
Richard J Chen, Ming Y Lu, Wei-Hung Weng, Tiffany Y Chen, Drew F K Williamson, Trevor Manz, Maha Shady, Faisal Mahmood
2021 IEEE/CVF International Conference on Computer Vision (ICCV), 2021

OME-NGFF: a next-generation file format for expanding bioimaging data-access strategies
Josh Moore, Chris Allan, Sébastien Besson, Jean-Marie Burel, Erin Diel, David Gault, Kevin Kozlowski, Dominik Lindner, Melissa Linkert, Trevor Manz, Will Moore, Constantin Pape, Christian Tischer, Jason R Swedlow
Nat. Methods 18.12 (Dec. 2021) pp. 1496–1498. 2021

Periphery Plots for Contextualizing Heterogeneous Time-Based Charts
Bryce Morrow, Trevor Manz, Arlene E Chung, Nils Gehlenborg, David Gotz
2019 IEEE Visualization Conference (VIS), 2019

Preprints

Vitessce: a framework for integrative visualization of multi-modal and spatially-resolved single-cell data
Mark S Keller, Ilan Gold, Chuck McCallum, Trevor Manz, Peter V Kharchenko, Nils Gehlenborg
OSF Preprints (Oct. 2021). 2021

Presentations

2021 **Web-based Tools for Coordinated Exploration of Integrated Bioimaging and Omics Datasets**
Poster Presentation, 4DN Annual Meeting (December 2021)
Interactive web-based OME-TIFF and OME-NGFF visualization with Viv
Poster Presentation, Crick BioImage Analysis Symposium (November 2021)
Interactive multiscale microscopy visualization on the web with Viv
Talk, Symposium on Biological Data Visualization at the International Conference on Intelligent Systems for Molecular Biology (ISMB) (July 2021)
Reading multiscale image formats as Zarr with Dask
Invited Talk, Dask Summit life-science workshop (May 2021)

2020 **Modular Visualization of Spatial Single-Cell Omics Data**
Poster Presentation, Symposium on Biological Data Visualization at the International Conference on Intelligent Systems for Molecular Biology (ISMB) (July 2020)
Vitessce - visual integration tool for exploration of spatial single-cell experiments
Talk, National Library of Medicine Trainees Conference (June 2020)

Extracurricular

Varsity Swimming Team, Kenyon College *Gambier, OH, USA*
Team Captain | NCAA Division III Team National Champion | 23-time NCAA All-American | NCAA Record Holder *August 2013 - May 2017*