

Matthew N. Bernstein

Morgridge Institute for Research
Regenerative Biology Group
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Education	University of Wisconsin - Madison Ph.D., Computer Sciences Advisor: Colin Dewey, Ph.D.	Madison, WI Aug. 2019
	University of Wisconsin - Madison M.S., Computer Sciences	Madison, WI Dec. 2015
	University of Notre Dame B.S. <i>Magna Cum Laude</i> , Computer Science	South Bend, IN May 2013
Experience	Morgridge Institute for Research Postdoctoral Fellow Advisors: Christina Kendzierski, Ph.D. Ron Stewart, Ph.D.	Madison, WI 2019 - Present
	University of Wisconsin - Madison Research Assistant Advisor: Colin Dewey, Ph.D.	Madison, WI 2014 - 2019
	Amazon Software Development Engineering Intern	Seattle, WA Summer 2014
	University of Wisconsin - Madison Teaching Assistant (Lecturer) Course taught: CS302 - Introduction to Programming	Madison, WI Fall 2013, Spring 2014
	Amazon Software Development Engineering Intern	New York City, NY Summer 2013
	Space and Naval Warfare Systems Command Research Intern	San Diego, CA Summer 2012
	NIH/BD2K Young Investigator Travel Scholarship International Conference on Intelligent Systems for Molecular Biology Chicago, IL, July 6-10, 2018	
Awards and Fellowships		

Best Plenary Talk

National Library of Medicine Informatics Training Conference
San Diego, CA, June 6, 2017

CIBM Predoctoral Fellowship

University of Wisconsin - Madison
Feb. 2015 - Feb. 2018

University Housing Honored Instructor Award

University of Wisconsin – Madison
Fall 2013

**Professional
Memberships**

International Society for Computational Biology
Upsilon Pi Epsilon
Tau Beta Pi

**Peer-reviewed
Publications**

† corresponding
author

Bernstein, M.N., Ni, Z., Collins, M., Burkard, M.E., Kendziorski, C., Stewart, R. (2021). CHARTS: A web application for characterizing and comparing tumor subpopulations in publicly available single-cell RNA-seq datasets. *BMC Bioinformatics*. In Press.

Bernstein, M.N., Ma, J., Gleicher, M., Dewey, C.N. (2021). CellO: Comprehensive and hierarchical cell type classification of human cells with the Cell Ontology. *iScience*, 24(1), 101913.

Overmyer, K.A., Shishkovaa, E., Miller, I.J., Balnisa, J., **Bernstein, M.N.**, Peters-Clarke, T.M., Meyer, J.G., Quan, Q., Muehlbauer, L.K., Trujillo1, E.A., He1, Y., Chopra, A., Chieng, H.C., Anupama Tiwari, A., Judson, M.A., Paulson, B., Brademan, D.R., Zhu, Y., Serrano, L.R., Linke, V., Drake, L.A., Adam, A.P., Schwartz, B.S., Singer, H.A., Swanson, S., Mosher, D.F., Stewart, R., Coon, J.J., Jaitovich, A. (2021). Large-scale Multi-omic Analysis of COVID-19 Severity. *Cell Systems*, 12(1), 23-40.

Bernstein, M.N.†, Gladstein, A., Latt, K.Z., Clough, E., Busby, B., Dillman, A. (2020). Jupyter notebook-based tools for building structured datasets from the Sequence Read Archive. *F1000Research*, 9(376).

Bernstein, M.N., Doan, A., Dewey, C.N. (2017). MetaSRA: normalized human sample-specific metadata for the Sequence Read Archive. *Bioinformatics*, 33(18), 2914–2923.

**Submitted
Manuscripts**

Simonett, S.P., Shin, S., Bacher, R., Dong, C., Smith, L., Rabaglia, M., Stapleton, D., Schueler, K., Choi, J., **Bernstein, M.N.**, Perez-Cerventes, C., Herring, J., Spaeth, J., Stein, R., Tessem, J., Kendziorski, C., Keles, S., Moskowitz, I., Attie, A., Keller, M. (2020). Identification of direct transcriptional targets of Nfatc2 that promote β -cell proliferation in human islets.

Talks and
Seminars

**Workshop on Computational Advances for Single-Cell Omics
Data Analysis (CASCODA)**

*CellO: Comprehensive and hierarchical cell type classification of human cells
with the Cell Ontology*

Virtual, Dec. 12, 2020

**International Conference on Intelligent Systems for Molecular
Biology (ISMB)**

MetaSRA: Normalized sample-specific metadata for the Sequence Read Archive
Chicago, IL, July 7, 2018

Center for Predictive Computational Phenotyping Annual Retreat

Cellular phenotyping with mass, heterogeneous transcriptomic data

Madison, WI, May 31, 2018

Computation and Informatics in Biology and Medicine Seminar

Towards cell type prediction with public RNA-seq data

University of Wisconsin - Madison, January 30, 2018

National Library of Medicine Informatics Training Conference

MetaSRA: Normalized sample-specific metadata for the Sequence Read Archive
San Diego, CA, June 6, 2017

Center for Predictive Computational Phenotyping Annual Retreat

MetaSRA: Normalized sample-specific metadata for the Sequence Read Archive
Madison, WI, June 1, 2017

Poster
Presentations

Cold Spring Harbor Laboratory conference on Biological Data Science

Virtual, Nov. 4-6, 2020

International Conference on Intelligent Systems for Molecular Biology

Virtual, July 13-16, 2020

Great Lakes Bioinformatics Conference

Madison, WI, May 19-22, 2019

RNA-Seq Summit

San Francisco, CA, April 25-27, 2017

National Library of Medicine Informatics Training Conference

Columbus, OH, June 27-28m 2016

Undergraduate
Mentorship

Aparna Maddala (Georgia Institute of Technology)

Integrated Biological Sciences Summer Research Program, Summer 2019

Project: *Hierarchical deconvolution of bulk RNA-seq data in the MetaSRA*

Brett VanTassel (Ramapo College of New Jersey)
Integrated Biological Sciences Summer Research Program, Summer 2017
Project: *Compression of RNA-seq alignments*

Kevin Liao (University of North Carolina at Chapel Hill)
Integrated Biological Sciences Summer Research Program, Summer 2016
Project: *Comparing similarity measures over RNA-seq derived gene expression profiles*

Teaching

Guest lecture for STAT 877 - Statistical Methods for Molecular Biology
Visualizing high dimensional data with dimensionality reduction
University of Wisconsin - Madison, Sept. 22, 2020

Guest lecture for STAT 877 - Statistical Methods for Molecular Biology
Cellular phenotyping with public, heterogeneous RNA-seq data
University of Wisconsin - Madison, Feb. 7, 2019

CS 302 - Introduction to Programming
University of Wisconsin - Madison, Fall 2013 & Spring 2014
Teaching Assistant (primary lecturer to class of approximately 30 students)

Service

Journal Reviewer: Bioinformatics, BMC Bioinformatics,
Journal of Computational Biology, Nature Biotechnology,
Nature Communications, Nucleic Acids Research

Review Editor for Frontiers in Genetics
2021-Present

Committee Member, Prospective Student Welcome Weekend
Department of Computer Sciences, University of Wisconsin - Madison,
Spring 2016 & Spring 2014

Committee Chair, Prospective Student Welcome Weekend
Department of Computer Sciences, University of Wisconsin - Madison,
Spring 2015

Club Leader, After School Computer Programming Club
Stephen's Point Elementary School, Madison, WI, Spring 2015

Professional Activities

Team Lead, NCBI's Single-cell in the Cloud Codeathon
New York Genome Center, NY, January 15-17, 2020

Team Lead, NCBI's RNA-Seq in the Cloud Codeathon
University of North Carolina at Chapel Hill, NC, March 11-13, 2019