Matthew N. Bernstein

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http://mbernste.github.io

Education

- **University of Wisconsin – Madison** — Madison, WI
  Ph.D. in Computer Sciences — *Expected 2019*
  - **Advisor**: Colin Dewey
  - **Thesis**: Computational methods for transcriptome-based cellular phenotyping
- **University of Wisconsin – Madison** — Madison, WI
  M.S. in Computer Sciences — *Dec. 2015*
- **University of Notre Dame** — South Bend, IN
  B.S. in Computer Science; Magna Cum Laude — *May 2013*

Experience

- **University of Wisconsin - Madison** — Madison, WI
  Research Assistant under Prof. Colin Dewey — *Aug. 2014 - Present*
  - Researching and developing novel computational methods for extracting knowledge from large, public repositories of biological sequencing data
  - Mentor undergraduate students working in the lab
- **Amazon** — Seattle, WA
  Software Development Engineering Intern — *Summer 2014*
  - Designed, implemented, and launched auto-complete search-suggestions for the Amazon Local website's search bar. Search suggestions are served as the user is typing a query
  - Designed, implemented, and launched an offline system that uses previous customer search data to pre-compute an index of search suggestions
- **University of Wisconsin - Madison** — Madison, WI
  Teaching Assistant (Lecturer) — *Aug. 2013 - May 2014*
  - Lecturer to ∼30 students in CS 302 - Introduction to Programming
  - Created assignments, quizzes, and lesson plans for my class
  - Designed two programming projects that all ∼700 students enrolled in CS 302 were required to complete
- **Amazon** — New York, NY
  Software Development Engineering Intern — *Summer 2013*
  - Improved Amazon Posts - a tool that allows brands to create short social messages that appear on various feeds across Amazon websites
  - Revamped the Amazon Posts management UI to include analytics that inform brands on how successfully each post has reached customers and promoted purchases
  - Improved the customer facing look and feel of the Amazon Posts feeds
- **Space and Naval Warfare Systems Command (SPAWAR)** — San Diego, CA
  Research Intern — *Summer 2012*
  - Researched applications of machine learning for the task of determining political and group affiliation of anonymous internet authors
  - Built a prototype application for tagging public web content that may be of interest to intelligence analysts

Awards and fellowships

- **Best Plenary Talk**, National Library of Medicine Informatics Training Conference, San Diego, CA, June 6, 2017
- Awarded three year, NIH funded traineeship through **Computation and Informatics in Biology and Medicine** training program between Feb. 2015 - Feb. 2018
- **University Housing Honored Instructor Award**. University of Wisconsin–Madison, Fall 2013
- **Tau Beta Pi** Membership. University of Notre Dame, Fall 2011
- **Upsilon Pi Epsilon** Membership. University of Notre Dame, Fall 2011

Peer-reviewed publications

- **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.

Invited talks

- **Center for Predictive Computational Phenotyping Annual Retreat** — Madison, WI
  Cellular phenotyping with mass, heterogeneous transcriptomic data — *May 31, 2018*
- **National Library of Medicine Informatics Training Conference** — San Diego, CA
  MetaSRA: normalized human sample-specific metadata for the Sequence Read Archive — *June 6, 2017*
- **Center for Predictive Computational Phenotyping Annual Retreat** — Madison, WI
  MetaSRA: normalized human sample-specific metadata for the Sequence Read Archive — *June 1, 2017*

Poster presentations

- **RNA-Seq Summit** — San Francisco, CA
  MetaSRA: normalized human sample-specific metadata for the Sequence Read Archive — *April 26-27, 2017*
- **National Library of Medicine Informatics Training Conference** — Columbus, OH
  Standardizing sample-specific metadata in the Sequence Read Archive — *June 27-28, 2016*

Service

- **Integrated Biological Sciences Summer Research Program** — Madison, WI
  Mentor — *Summer 2015, 2016*
  - Co-mentored undergraduate students' summer research projects with Prof. Colin Dewey
- **Computer Sciences Graduate Student Welcome Weekend** — Madison, WI
  Committee member, Committee chair — *Spring 2014, 2015, 2016*
  - Planned the department's prospective student visit weekend
  - Chaired the committee in Spring 2015
- **Scratch Computer Programming Club at Stephen's Point Elementary** — Madison, WI
  Club Leader — *Spring 2015*
  - Led an after school computer science club for 4th and 5th grade students

Technical skills

- **Software Development**: Python (strong), Java (strong), C/C++ (familiar), JavaScript (familiar), HTML, CSS, SQL, MongoDB, Git, Numpy, Matplotlib, Scikit Learn
- **CS & Machine Learning Topics**: Probabilistic Modeling, Bayesian Inference, Dimensionality Reduction, Named Entity Recognition, Knowledge Representation
- **Bioinformatics Topics**: RNA-seq, Transcriptome Quantification