

Justin Silverman

CONTACT INFORMATION	Justin.Silverman@duke.edu justin-silverman.com statsathome.com
RESEARCH INTERESTS	<i>Mathematical and Statistical Models for Solving Clinically Relevant Problems</i> Diet and human health, host-associated microbiota, complex systems, machine learning, geometric approaches to probability and statistics, probability theory
EDUCATION	Duke University M.D./Ph.D. Candidate (2012 - PhD expected 2018, MD expected 2019) Computational Biology and Bioinformatics <ul style="list-style-type: none">• Dissertation Topic: Bayesian time-series models for the design and evaluations of microbiome-based therapeutics• Advisors: Lawrence David, Ph.D. and Sayan Mukherjee, Ph.D. Johns Hopkins University B.S. Physics and Biophysics (Double Major), May 2011 <ul style="list-style-type: none">• Minor in mathematics• Overall GPA: 3.87
PUBLICATIONS	Silverman JD , Washburne AD, Mukherjee S, David LA. (2017) A phylogenetic transform enhances analysis of compositional microbiota data. <i>eLife</i> 2017;6:e21887 Washburne AD, Silverman JD , Leff JW, Bennett DJ, Darcy JL, Mukherjee S, Fierer N, David LA. (2017) Phylogenetic factorization of compositional data yields lineage-level associations in microbiome datasets. <i>PeerJ</i> 5:e2969 https://doi.org/10.7717/peerj.2969
PREPRINTS	Silverman JD , Silverman RK. (2017) The Bayesian Sorting Hat: A Decision-Theoretic Approach to Size-Constrained Clustering. arXiv:1710.06047
PATENTS AND SOFTWARE	Justin Silverman (2016) phlir: Phylogenetic partitioning based ILR transform for metagenomics data. R package version 1.0.0. http://bioconductor.org/packages/phlir/ Justin David Silverman , Adam Sean Jermyn, Nina Markovic. (2015) <i>System for Lightweight Image Processing</i> . U.S. Patent 9,097,739.
CONFERENCE TALKS	<i>Geometric methods for modeling time evolution in human microbiota</i> , ENAR 2018 Spring Meeting, Atlanta, Georgia. (March 2018) <i>Modeling time evolution and therapeutic effect in human microbiota</i> , The 7 th International Workshop on Compositional Data Analysis, Abbadia San Salvatore, Italy. (June 2017)
INVITED TALKS	<i>Scalable count-compositional models for microbiome time-series data</i> , Seminari d'Estadística I Investigació Operativa, Universitat Politècnica de Catalunya, Spain. (May 2017) <i>Modeling time evolution in human microbiota</i> , Seminar in Compositional Data, Universitat de Girona, Spain. (May 2017)

A geometric approach to modeling human microbiota dynamics, Health Analytics Workshop, Duke University. (November 2016)

ACCEPTED
ABSTRACTS

Silverman, J, Mukherjee S, David LA. (2017, July). A Phylogenetic Transform Enhances Analysis of Compositional Microbiota Data, JSM 2017. Baltimore, MD.

Silverman, J, Mukherjee S, David LA. (2016, February), A Phylogenetic Approach to Overcoming Compositional Problems in Microbiome Data, The First Workshop on Challenges in Microbiome Data Analysis. New York, NY.

Roth S, Patel S, Silverman J et al. (2011, September) Association of *S. Pyogenes* DNA from Throat Swabs of Asymptomatic Children and Very High Prevalence of Rheumatic Heart Disease in Rural South America. 51st ICAAC. Chicago, IL.

Silverman J, et al. (2011, July) Prevalence of Cardiovascular Risk Factors in Guyana, South America, International Academy of Cardiology, 16th World Congress on Heart Disease. Abstract 281.

Silverman J, Jermyn A, Rivera R, Markovic N,. (2010, August), Length Dependent Optical Properties of Ultra-Short Carbon Nanotubes, Johns Hopkins Joint Poster Session: Summer Internship Programs

Szlavec K, Terzis A, Musaloiu R, Szalay A, Gupchup J, Liang C, Xia L, Cogan J, Silverman J, Swarth C, Matthews S, Ellis E,. (2008), Life Under Your Feet: A Wireless Soil Ecology Sensor Network, Eos Trans. AGU 89(53), Fall Meet. Suppl., Abstract IN23A-10

HONORS AND
AWARDS

Best Young Presentation (Compositional Data Analysis Workshop)	2017
Phi Beta Kappa (JHU Highest Honors for Arts and Sciences)	2011
Donald E. Kerr Memorial Award for Excellence in Physics	2011
H. Keffer Hartline Award for Outstanding Scholarship in Biophysics	2011
JHU Office of Greek Life Senior Academic Excellence Award	2011
Goldwater Scholar	2010
Provost Undergraduate Research Award	2010
Materials Research Science and Engineering Center, Summer REU	2010
Sigma Pi Sigma (Physics Honor Society, Invitation Only)	2010

TEACHING
EXPERIENCE

Statistical Methods in Computational Biology	Spring 2017
Teaching Assistant, Duke University	
Spectroscopy (Quantum Mechanics for Biophysics)	Fall 2011
Teaching Assistant, Johns Hopkins University	

STANDARDIZED
TESTING

270 USMLE Step 1	2014
263 USMLE Step 2 CK	2015
Pass USMLE Step 2 CS	2015

GRADUATE /
MEDICAL
COURSEWORK

- Statistical Methods for Computational Biology
- Bayesian and Modern Statistics
- Time Series and Dynamic Models
- Genome Tools and Technologies
- Intro Computational Genomics
- Molecular Biology
- Biochemistry
- Physiology
- Pathology
- Neuroscience
- Immunology
- Medical Microbiology

CLINICAL
ROTATIONS

- Medicine
- Surgery
- Pediatrics
- Neurology
- Psychiatry
- Obstetrics and Gynecology
- Pediatric Intensive Care
- Emergency Medicine
- Family Medicine
- Radiology