

Julia Fukuyama

Fred Hutchinson Cancer Research Center

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Current position

Assistant Professor

Department of Statistics

Indiana University, Bloomington

Appointments held

Postdoctoral Research Fellow

Department of Computational Biology

Fred Hutchinson Cancer Research Center

2017-2018

Education

PhD Statistics, Stanford University

2017

Advisor: Susan Holmes

MS Statistics, Stanford University

2012

BS Biology, *magna cum laude*, Yale University

2010

Publications

Diana Proctor, *Julia Fukuyama*, Peter Loomer, Gary Armitage, Stacey Lee, Nicole Davis, Mark Ryder, Susan Holmes, David Relman. A spatial gradient of bacterial diversity in the human oral cavity shaped by salivary flow. *Nature Communications*, 2018.

*Julia Fukuyama**, Laurie Rumker*, Kris Sankaran*, Pratheepa Jeganathan, Les Dethlefsen, David A. Relman, Susan Holmes. Multidomain analyses of a longitudinal human microbiome intestinal cleanout perturbation experiment. *PLoS Computational Biology*, 2017.

Elena Vendrame*, *Julia Fukuyama**, Dara Strauss-Albee, Susan Holmes, Catherine Blish. Mass cytometry analytical approaches reveal cytokine-induced changes in natural killer cells. *Cytometry Part B: Clinical Cytometry*, 2016.

Benjamin Callahan, Kris Sankaran, *Julia Fukuyama*, Paul McMurdie, and Susan Holmes. Bioconductor workflow for microbiome data analysis: from raw reads to community analyses. *Frontiers Research*, 2016.

Benjamin Callahan, Diana Proctor, *Julia Fukuyama*, David A. Relman, Susan Holmes. Reproducible research workflow in R for the analysis of personalized human microbiome data. *Pacific Symposium on Biocomputing*, 2016.

Dara Strauss-Albee, *Julia Fukuyama*, Emily Liang, Yi Yao, Justin Jarrell, Alison Drake, John Kinuthia, Ruth Montgomery, Grace John-Stewart, Susan Holmes, Catherine Blish. Human NK cell repertoire diversity reflects immune experience and correlates with viral susceptibility. *Science Translational Medicine*, 2015.

Alex Kay, Nick Bayless, *Julia Fukuyama*, Natali Aziz, Cornelia Dekker, Sally Mackey, Gary Swan, Mark Davis, Catherine Blish. Pregnancy does not attenuate the antibody or plasmablast response to inactivated influenza vaccine. *Journal of Infectious Diseases*, 2015.

Alex Kay, *Julia Fukuyama*, Natali Aziz, Cornelia Dekker, Sally Mackey, Gary Swan, Mark Davis, Susan Holmes, Catherine Blish. Enhanced natural killer-cell and T-cell responses to influenza A virus during pregnancy. *Proceedings of the National Academy of Sciences*, 2014.

Miling Yan, Sunje Pamp, *Julia Fukuyama*, Peter Hwang, Do-Yeon Cho, Susan Holmes, David A. Relman. Nasal microenvironments and interspecific interactions influence nasal microbiota complexity and *S. aureus* carriage. *Cell Host and Microbe*, 2013.

Julia Fukuyama, Paul McMurdie, Les Dethlefsen, David A. Relman, Susan Holmes. Comparisons of Distance Methods for Combining Covariates and Abundances in Microbiome Studies. *Pacific Symposium on Biocomputing*, 2012.

Jeffrey Isenberg, Yifeng Jia, *Julia Fukuyama*, Christopher Switzer, David A. Wink, David D. Roberts. Thrombospondin-1 inhibits nitric oxide signaling via CD36 by inhibiting myristic acid uptake. *Journal of Biological Chemistry*, 2007.

Preprints

Julia Fukuyama. Adaptive gPCA: A method for structured dimensionality reduction. arXiv preprint arXiv:1702.00501, 2017. In revision at *Annals of Applied Statistics*.

Presentations

Using Phylogenetic Information to Understand the Microbiome.
Biostatistics Colloquium, Fred Hutchinson Cancer Research Center, Seattle, WA May

2018.

Using Phylogenetic Information to Understand the Microbiome

University of California Berkeley Center for Computational Biology, Berkeley, CA,
March 2018.

Using Phylogenetic Information to Understand the Microbiome

University of Vermont Department of Statistics, Burlington, VT, March 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

Wharton Department of Statistics, Philadelphia, PA February 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

Vanderbilt University Department of Biostatistics, Nashville, TN, February 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

Yale University Department of Statistics, New Haven, CT, February 2018.

Learning Interpretable Representations of the Microbiome

Yale University Department of Immunobiology, New Haven, CT, February 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

University of Michigan Department of Biostatistics, Ann Arbor, MI, February 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

University of Toronto Department of Statistics, Toronto, Canada, January 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

Florida State University Department of Statistics, Tallahassee, FL, January 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

University of Virginia Department of Statistics, Charlottesville, VA, January 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

University of Oregon Department of Biology, OR, January 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

Colorado State University Department of Statistics, Fort Collins, CO, January 2018.

Dimensionality Reduction with Structured Variables and Applications to the Microbiome

Columbia University Department of Statistics, New York, NY, January 2018.

Dimension Reduction with Structured Variables

Indiana University Department of Statistics, Bloomington, IN, January 2018.

Adaptive gPCA. Strategies and Techniques for Analyzing Microbial Population Structures (STAMPS), Woods Hole, MA, August 2017.

Beyond UniFrac. Interdisciplinary Microbiome Perspectives, Stanford, CA, June 2017.

Improved phylogenetic ordinations for microbiome data. Joint Statistical Meetings, Chicago, IL, August 2016.

Phylogenetically informed analysis of microbiome data using adaptive gPCA in R, UseR, Stanford, CA, June 2016.

Interpretable ordinations for microbiome data using sparse double principal coordinates analysis. Biomedical Computation at Stanford, Stanford, CA, April 2015.

Comparisons of distance methods for combining covariates and abundances in microbiome studies. Pacific Symposium on Biocomputing, Kona, HI, January 2012.

Teaching

<i>Strategies and Techniques for Analyzing Microbial Population Structures</i>	August 2017
Marine Biological Lab, Woods Hole, MA	
Research Facilitator	

<i>Biostatistics</i>	Autumn 2016
Statistics Department, Stanford University	
Teaching assistant, led sections	

<i>Introduction to Statistical Methods: Precalculus</i>	Summer 2015
Statistics Department, Stanford University	
Teaching assistant	

<i>Modern Applied Statistics: Data Mining</i>	Spring 2015
Statistics Department, Stanford University	
Teaching assistant	

<i>Biostatistics</i>	Autumn 2015
Statistics Department, Stanford University	
Teaching assistant	

Understanding Statistical Models and their Social Science Applications Winter 2014
 Statistics Department, Stanford University
 Teaching assistant

Data Mining and Analysis Stanford, Autumn 2014
 Statistics Department, Stanford University
 Teaching assistant

Modern Statistics for Modern Biology Summer 2014
 Statistics Department, Stanford University
 Teaching assistant, designed lab materials

Biostatistics Autumn 2013
 Statistics Department, Stanford University
 Teaching assistant

Understanding Statistical Models and their Social Science Applications Winter 2013
 Statistics Department, Stanford University
 Teaching assistant

Introduction to Statistical Methods: Precalculus Autumn 2012
 Statistics Department, Stanford University
 Teaching assistant, led weekly sections

Service to the profession

Referee for the *Annals of Applied Statistics*, *PLoS Computational Biology*, *Microbiome*, *Molecular Ecology Resources*.

Awards

Bio-X Stanford Interdisciplinary Graduate Fellowship	2014-2017
Yale College William R. Belknap Prize for Excellence in Biology	2010
Yale College Dean's Research Fellowship in the Sciences	2009
Yale College Fellowship for	
International Research in the Sciences and Health Studies	2008