Taylor B. Arnold
Curriculum Vitae

Yale University
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PROFESSIONAL APPOINTMENTS

2015 - Present	Yale University, Statistics, Lecturer
2014 - Present	AT&T Labs Research, Senior Scientist

EDUCATION

2013   Ph.D. Statistics, Yale University
        Thesis: "Inference with Ill-Conditioned Design Matrices"
        Advisor: Sekhar Tatikonda
        Co-Advisor: John Emerson

2009   M.A. Statistics, Yale University

2007   A.B. Mathematics, Bowdoin College
        Thesis: "Convergence Properties of Simplex Optimization Algorithms"
        Graduated *cum laude*

RESEARCH INTERESTS

Statistical analysis of petabyte-scale data
     develop new techniques, tools, and paradigms for analyzing very large datasets (i.e., "big data"), with a particular focus on streaming, spatiotemporal feeds

Penalized estimation
     combine structurally penalized models with modern optimization theory to enforce complex sparsity patterns in high-dimensional inference; applications include image analysis, epidemiology, and spatial point processes

Applications to humanities data
     collaborate with humanities scholars to visualize and extract meaning from large text, image, and video corpora; engage in broad discourse of Digital Humanities

PUBLICATIONS

Books

2015   Arnold, Taylor and Lauren Tilton. *Humanities Data in R: Exploring Networks, Geospatial Data, Images, and Text*. New York: Springer International Publishing, 2015. doi: 10.1007/978-3-319-20702-5.

Refereed Journal Articles

2015   Arnold, Taylor, Lauren Tilton, Stacey Maples, and Laura Wexler. "Uncovering Latent Metadata in the FSA-OWI Photographic Archive". *Digital Humanities Quarterly*. Accepted August 2015.

2014   Arnold, Taylor and Ryan Tibshirani. "Efficient Implementations of the Generalized Lasso Dual Path Algorithm." *Journal of Computational and Graphical Statistics*. Accepted December 2014. doi: 10.1080/10618600.2015.1043010.

2013   Grippo, Tomas, John Liu, Nazlee Zebardast, Taylor Arnold, Grant Moore, and Robert Weinreb. "Twenty-Four–Hour Pattern of Intraocular Pressure in Untreated Patients with Ocular Hypertension." *Investigative Ophthalmology & Visual Science* 54.1 (2013): 512-517. doi: 10.1167/iovs.12-10709.

2011   Arnold, Taylor, and John Emerson. "Nonparametric goodness-of-fit tests for discrete null distributions." *The R Journal* 3.2 (2011): 34-39.

2011   Emerson, John, and Taylor Arnold. "Statistical sleuthing by leveraging human nature: A study of Olympic figure skating." *The American Statistician* 65.3 (2011). doi: 10.1198/tast.2011.10165.

2010   Russett, Bruce, and Taylor Arnold. "Who talks, and who's listening? Networks of international security studies." *Security Dialogue* 41.6 (2010): 589-598. doi: 10.1177/09670106-10388205.

Manuscripts in Submission

2015   Arnold, Taylor. "An Entropy Maximizing Geohash for Distributed Spatiotemporal Database Indexing". *ACM Transactions on Spatial Algorithms and Systems (TSAS)*. Submitted May 2015. arXiv:1506.05158 [cs.DB]

2015   Arnold, Taylor, Michael Kane, Simon Urbanek. "iotools: High-Performance I/O Tools for R." *R Journal*. Submitted March 2015.

2015   Arnold, Taylor, Michael Kane, Simon Urbanek. "Computing Strategies for Fitting Regressions at Scale". *Journal of Statistical Software*. Submitted September 2015.

Conference Proceedings

2012   Arnold, Taylor, "Defining the Charter: Judicial Activism and the Supreme Court of Canada". APSA 2012 Annual Meeting Paper. Available at SSRN: `http://ssrn.com/abstract=2109074`

2012   Arnold, Taylor. 2012. "User-Oriented High-Dimensional Linear Model Estimation". In JSM Proceedings, Statistical Computing Section. Alexandria, VA: American Statistical Association. 2429-2443.

Manuscripts in Preparation

Arnold, Taylor, Simon Byers, Simon Urbanek. "Sparse and Fast Spatial Density Estimation".

Arnold, Taylor, Lauren Tilton. "The NLP Pipeline and Deterministic Topic Constructions".

Arnold, Taylor. "An Affine Constrained Fused Lasso for Discrete Spatial Distributions".

Arnold, Taylor, Lauren Tilton. "Beyond a Bag of Words: New Feature Sets for Topic Models".

Arnold, Taylor, Michael Kane, Simon Urbanek. "Tools for the Datalake: Fast Queries over Large Deliminated Files".

TEACHING EXPERIENCE

2015-2016   **Lecturer**, *Yale University*

        Data Mining and Machine Learning (Spring 2016)
        Linear Models (Fall 2015)

2011   **Visiting Lecturer**, *Connecticut College*

        Introduction to Statistics, two sections (Spring 2011)

2010   **Visiting Instructor**, *Yale University Summer College*

        Introduction to Statistics (Summer 2010)

2010-2012   **Teaching Assistant**, *Yale University*

        Advanced Data Analysis (Fall 2010, Spring 2012)
        Introductory Data Analysis (Spring 2011)
        Introductory Statistics (Fall 2011)
        Statistical Case Studies (Fall 2010)

INVITED TALKS

2016   Culture Analytics and User Experience Design, Instituate for Pure and Applied Mathematics, UCLA, April 2016

2015   "Using in R in Humanities Research", Institute for Liberal Arts Digital Scholarship (ILiADS), Hamilton College, July 2015

2015   "High Performance Data I/O", New England Statistics Symposium, University of Connecticut, April 2015

2015   "Oh the Places We'll Go", Department Seminar, Amherst College, February 2015

2013   "The Genlasso Package", Connecticut R Users Group, New Haven, CT, February 2013

2012   "Historical Data with Photogrammar", University Library Colloquium, Columbia University, March 2012

2011   "The Best Guess: Comparing Bernoulli Estimators", Department Seminar, Bowdoin College, November 2011

CONFERENCE ACTIVITY

2016   Joint Statistical Meetings, "What to do with messy data? Four case studies." Chair and Organizer. Invited Session, 30 July - 4 August.

2014   American Studies Association Annual Meeting, "Photogrammar: Organizing Visual Culture through Geography, Text Mining, and Statistical Analysis". 7-12 July.

2012   American Studies Association Annual Meeting, "Photogrammar in Puerto Rico: Reading the FSA's 1930s Visual Archive with Twenty-first-Century Visualization Tools". 15-18 November.

2012   Joint Statistical Meetings, "User Oriented High Dimensional Linear Model Estimation", Contributed Talk, 28 July - 2 August.

2012   Joint Statistical Meetings, "Statistical Sleuthing by Leveraging Human Nature", Invited Poster, 28 July - 2 August.

2012   useR! Meeting, "Package hdlm: Fitting High Dimensional Linear Models", Contributed Talk, 12-15 June.

2012   American Historical Association Annual Meeting, "From Archive to Interdisciplinary Tool: Transforming Our Image of the FSA-OWI Photograph Collection", Contributed Talk, January 5-8.

2011   American Studies Association Annual Meeting, "Digital Humanities Lightning Shorts", Contributed Talk, 20-23 October.

2011   useR! Meeting, "Nonparametric Goodness-of-Fit Tests for Discrete Null Distributions", Contributed Talk, 16-18 August.

AWARDS

2013   Yale Thesis Writing Prize
2011-2015   NEH Digital Start-Up Grant, Photogrammar, Co-Director
2008-2013   Yale Graduate Fellowship

ADVISING

2015-2016	David Marcano, Senior Thesis Advisor, Yale Statistics
2015	Yutaro Yamada, Undergraduate Summer Intern, Yale Graphics Group

PROFESSIONAL SERVICE

2015-2016	American Statistical Association, Section Program Chair
2015	Biometrika, Referee
2014-2015	Journal of Statistical Software, Referee
2013-2015	Neurology, Referee
2012-2014	The R-Journal, Referee

UNIVERSITY SERVICE

2009-2013	Graduate Student Assembly, Statistics Representative
2010-2011	Yale Tribunal, Member
2010-2011	Yale Graduate School Executive Committee, Member

OTHER POSITIONS

2013-2014	Traveler's Insurance, Research and Development, Manager
2007-2008	IBM, Global Business Services, Consultant

PROFESSIONAL MEMBERSHIPS

American Statistical Association (ASA)
Association for Computing Machinery (ACM)
American Mathematical Society (AMS)

REFERENCES

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