

Matthew James Denny

Curriculum Vitae

Department of Political Science
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Research Interests

Political Methodology, Computational Social Science, Congress, Bureaucracy, Data Science.

Education

Ph.D., Political Science and Social Data Analytics, Pennsylvania State University, 2018 (expected)

Fields: Methodology, American Politics

M.A., Political Science, University of Massachusetts Amherst, 2015

Fields: American Politics, Computational Social Science

M.S., Resource Economics, University of Massachusetts Amherst, 2013

Fields: Applied Econometrics, Experimental Economics

B.A., Economics, Commonwealth Honors College, University of Massachusetts Amherst, 2012

Summa Cum Laude, Phi Beta Kappa, Departmental Honors

Journal Articles

3. James D. Wilson, **Matthew J. Denny**, Shankar Bhamidi, Skyler Cranmer, and Bruce A. Desmarais, (2017). “Stochastic weighted graphs: Flexible model specification and simulation”. *Social Networks*, 49, 37–47. [\[link\]](#)
2. James Ben Aaron, **Matthew J. Denny**, Bruce A. Desmarais, and Hanna Wallach. (2017). “Transparency by Conformity: A Field Experiment Evaluating Openness in Local Governments”. *Public Administration Review*, 77(1), 68–77. [\[link\]](#)
1. Angela C. M. de Oliveira, John M. Spraggon, and **Matthew J. Denny** (2016). “Instrumenting Beliefs in Threshold Public Goods.” *PLoS ONE*, 11(2), e0147043. [\[link\]](#)

Peer Refereed Proceedings

1. Abram Handler, **Matthew J. Denny**, Hanna Wallach, and Brendan OConnor (2016). “Bag of What? Simple Noun Phrase Extraction for Text Analysis”, in: *Proceedings of the Workshop on Natural Language Processing and Computational Social Science at the 2016 Conference on Empirical Methods in Natural Language Processing* [\[link\]](#)

Working Papers

4. Matthew J. Denny and Arthur Spirling, “Text Preprocessing For Unsupervised Learning: Why It Matters, When It Misleads, And What To Do About It”, ssrn.com/abstract=2849145, 2017.
3. Matthew J. Denny, “The Importance of Generative Models for Assessing Network Structure”, ssrn.com/abstract=2798493, 2016.
2. Matthew J. Denny, “Influence in the United States Senate”, ssrn.com/abstract=2465309, 2016.
1. Matthew J. Denny, “Graph Compartmentalization”, [arXiv:1407.2854](https://arxiv.org/abs/1407.2854), 2014.

Presentations

13. Matthew J. Denny “The Politics of Bureaucratic Constraint: How Congress Uses Legal Language To Achieve Political Goals”
 - *New Faces In Political Methodology IX*, Penn State, 2017.
12. Matthew J. Denny and Arthur Spirling “Text Preprocessing For Unsupervised Learning: Why It Matters, When It Misleads, And What To Do About It”
 - *NYU NLP and Text as Data Speaker Series*, NYU, 2017.
 - *Midwest Political Science Association Conference*, Chicago, 2017.
11. Matthew J. Denny and Arthur Spirling “Assessing the Consequences of Text Preprocessing Decisions”
 - *Text As Data*, Northeastern, 2016. [\[link\]](#)
10. Matthew J. Denny “The Importance of Generative Models for Assessing Network Structure”
 - *Midwest Political Science Association Conference*, Chicago, 2016.
 - *Political Networks Conference*, St. Louis, 2016.
9. Matthew J. Denny, James Ben Aaron, Hanna Wallach, and Bruce Desmarais “Reading Between The Emails: Gendered Patterns of Communication in Local Government”
 - *Text As Data*, NYU, 2015.
 - *Midwest Political Science Association Conference*, Chicago, 2016.
8. James D. Wilson, Matthew J. Denny, Shankar Bhamidi, Skyler Cranmer, Bruce Desmarais. “Complex Stochastic Weighted Graphs: Flexible Specification and Simulation”
 - (poster) *International Conference on Computational Social Science*, Helsinki, 2015. [\[link\]](#)
7. Matthew J. Denny, Brendan O’Connor, Hanna Wallach “A Little Bit of NLP Goes A Long Way: Finding Meaning in Legislative Texts with Phrase Extraction”
 - *Text As Data*, Northeastern, 2016.
 - *Midwest Political Science Association Conference*, Chicago, 2015.
6. Matthew J. Denny, Bruce A. Desmarais, Hanna Wallach “Hierarchical Topic-Partitioned Multinetwork Embeddings: Modeling Social Structure and Content across a Sample of Communication Networks”
 - *Southern Political Science Association Conference*, New Orleans, 2015.
 - *Midwest Political Science Association Conference*, Chicago, 2015.
 - (talk) *International Conference on Computational Social Science*, Helsinki, 2015. [\[link\]](#)
5. Matthew J. Denny “Big Data Analytics in R”
 - Invited Talk, *UMass Graduate Researchers Interested in Data (GRID)*, 2015. [\[link\]](#)
4. Matthew J. Denny, “Relational Theory and Models for Weighted Financial Networks”
 - *CAFCA/PERI Workshop on Financialization*, UMass Amherst, 2014. [\[link\]](#)
3. Matthew J. Denny, “Influence in the United States Senate”
 - *Political Networks Conference*, Montreal, 2014. [\[link\]](#)
 - *Midwest Political Science Association Annual Meeting*, Chicago, 2014.
 - *International Network for Social Network Analysis: Sunbelt Conference*, 2014.
 - (talk) *International Conference on Computational Social Science*, Helsinki, 2015. [\[link\]](#)

2. Matthew J. Denny, James Aaron, Hanna Wallach, Bruce A. Desmarais, “The Bias and Efficiency of Internal Local Government Communication Patterns”
 - *Political Methodology Conference*, Athens GA, 2014. [\[link\]](#)
 - *Political Networks Conference*, Montreal, 2014.
 - *Midwest Political Science Association Annual Meeting*, Chicago, 2014.
1. Matthew J. Denny, “Community Structure and its Implications for the Evolution of Cooperation”
 - *International Network for Social Network Analysis: Sunbelt Conference*, 2012 [\[link\]](#)

Grants, Fellowships, and Awards

10. RGSO Dissertation Research Grant, Penn State, 2017.
9. Best Political Science Master’s Essay 2015-2016, Department of Political Science, Penn State, 2016.
8. Big Data Social Science IGERT Fellow (NSF award DGE-1144860), 2015–2017
7. Political Networks Conference Travel Grant, 2014, 2016.
6. Department of Political Science Summer Research and Writing Grant, 2014 (UMass)
5. Alan L. and Carol S. LeBovidge Undergraduate Research Fellowship, 2011 (UMass)
4. Commonwealth College Honors Research Grant, 2011 (UMass)
3. Economics Department Summer Course Development Fellowship, 2011 (UMass)
2. William F. Field Alumni Scholar Award, 2010 (UMass)
1. Economics Achievement Award, 2009 (UMass)

Consulting and Research Experience

8. Research Assistant to Professor David Hunter, 2016–2017
7. Visiting Scholar (Supervised by Arthur Spirling), Department of Political Science and Center for Data Science, New York University, 2016–2017.
6. Research Assistant to Professors Hanna Wallach and Bruce Desmarais, Fall 2013 – Present
5. Methods Consultant, UMass Institute for Social Science Research, Fall 2013 – 2015
4. Programming Consultant, USDA Forrest Service, Summer 2013
3. Research Assistant to Professor Daniel Lass, 2012–2013
2. Research Assistant to Professor Gerald Epstein, Fall 2012
1. Regional Economic Impact Analysis in IMPLAN for Colorado Foundation for Universal Healthcare, Fall 2012 [\[link\]](#)

Teaching Experience

17. 2-Day Workshop, “Practical Web and Text Scraping”, UMass ISSR Summer Methodology Workshops, May 24-25, 2016 & 2017. [\[link\]](#)
16. 2-Day Workshop, “Data Management in R”, UMass ISSR Summer Methodology Workshops, May 22-23, 2016 & 2017. [\[link\]](#)
15. IGERT Workshops, “Text as Data” and “Parallel Computing”, Penn State University, November 30, 2015.
14. 3-Day Workshop, “Data Science and Big Data Analytics”, ICPSR Session II, July 2015. [\[link\]](#)
13. 3-Day Workshop, “Data Science and Advanced Data Management”, UMass ISSR Methodology Summit, June 1-3, 2015. [\[link\]](#)
12. UMass ISSR Workshop, “Intermediate R”, 2015 [\[link\]](#)
11. UMass ISSR Workshop, “Intermediate Social Network Theory”, 2015 [\[link\]](#)
10. UMass ISSR Workshop, “Introduction to R”, 2014, 2015 [\[link\]](#)
9. Hubert M. Blalock Lecture, “High Performance Computing and Big Data Analytics: An Introduction and Practical Applications”, ICPSR Session II, July 2014. [\[link\]](#)
8. Teaching Assistant, “Network Analysis - Advanced Topics”, ICPSR Session II, 2013, 2014, 2015.
7. UMass ISSR Workshop, “Introduction to High Performance Computing ”, 2014 [\[link\]](#)
6. UMass ISSR Workshop, “Introduction to Social Network Theory”, 2014, 2015 [\[link\]](#)
5. UMass ISSR Workshop, “Advanced Data Management in R ”, 2013, 2015 [\[link\]](#)
4. UMass ISSR Workshop, “Advanced \LaTeX and BibTeX ”, 2013, 2014 [\[link\]](#)
3. UMass ISSR Workshop, “An Introduction to \LaTeX ”, 2013, 2014 [\[link\]](#)
2. Teaching Assistant, Intermediate Econometrics, Spring 2013
1. Co-Instructor - Advanced Economics of Cooperative Enterprise, Fall 2011

Software

5. **[R Package: phrasemachine]** Matthew J. Denny, Abram Handler and Brendan O’Connor. *phrasemachine: Simple Phrase Extraction* [\[CRAN\]](#)
4. **[R Package: preText]** Matthew J. Denny and Arthur Spirling. *preText: Diagnostics to Assess the Effects of Text Preprocessing Decisions* [\[CRAN\]](#)
3. **[R Package: GERGM]** Matthew J. Denny, James D. Wilson, Skyler Cranmer, Bruce A. Desmarais, and Shankar Bhamidi. *GERGM: Estimation and Fit Diagnostics for Generalized Exponential Random Graph Models* [\[CRAN\]](#)
2. **[R Package: CCAS]** Matthew J. Denny, Zachary Jones, Bruce A. Desmarais, and Hanna Wallach. *CCAS: A Statistical Model for Communication Networks* [\[Github\]](#)
1. **[R Package: SpeedReader]** Matthew J. Denny. *SpeedReader: High Performance Text Processing* [\[Github\]](#)

Datasets

1. Cassie McMillan, Sayali Phadke, Mitchell Goist and Matthew J. Denny (2017). *Comparative Networks Dataset (v 1.0)*. [[Website](#)]

Service

3. Panel Organizer, "UMass ISSR Seminar: CV Building Blocks: Content and Format", Fall 2014 [[link](#)]
2. Panel Organizer, "UMass ISSR Seminar: Creating a Convincing CV", Spring 2014 [[link](#)]
1. Reviewer For: American Journal of Political Science, American Politics Research, Journal of Politics