

# Benjamin J. Radford

benradford.com

## Education

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| <b>Ph.D. in Political Science</b><br><i>Duke University</i>  | Durham, NC<br>2016    |
| <b>M.A. in Political Science</b><br><i>Duke University</i>   | Durham, NC<br>2015    |
| <b>B.A. in Mathematics and International Studies</b><br><i>University of North Carolina at Asheville</i> | Asheville, NC<br>2010 |

## Academic Appointments

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|---|--------------|
| <b>Assistant Professor</b><br><i>University of North Carolina Charlotte</i> |              |
| Core Faculty, Public Policy Ph.D. Program                                   | 2019–Present |
| Core Faculty, Political Science and Public Administration                   | 2019–Present |
| Affiliate, School of Data Science   | 2020–Present |
| Honors Faculty, Honors College  | 2022–Present |

## Professional Experience

|   |                                |
|---|--------------------------------|
| <b>President</b><br><i>LevelUp Research, LLC</i>  | Alexandria, VA<br>2018–Present |
| Subject Matter Expert for DARPA <i>SafeDocs</i>   | 2019–2022                      |
| Subject Matter Expert for DARPA <i>Hybrid Fusion</i>  | 2018–2019                      |
| <b>Subject Matter Expert</b><br><i>Giant Oak, Inc.</i>                                      | Arlington, VA<br>2022–2023     |
| DARPA INCAS   |                                |
| <b>Principal Data Scientist</b><br><i>Sotera Defense Solutions (later KeyW Corporation)</i> | Arlington, VA<br>2016–2018     |
| DARPA unnamed cybersecurity attribution program   |                                |
| <b>Senior Data Scientist</b><br><i>Caerus Associates (later Cybraics, Inc.)</i>             | Arlington, VA<br>2015–2016     |
| DARPA Network Defense   |                                |

## Refereed Publications

- Stoehr, Niklas, **Benjamin J. Radford**, Ryan Cotterell, and Aaron Schein (2023). "The Ordered Matrix Dirichlet for Modeling Ordinal Dynamics". *Proceedings of AISTATS 2023*.
- Dai, Yaoyao, **Benjamin J. Radford**, and Andrew Halterman (2022). "Political Event Coding as Text-to-Text Sequence Generation". *Proceedings of the 5th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE)*. Abu Dhabi, United Arab Emirates (Hybrid). Association for Computational Linguistics, pp. 117–123.

Hürriyetoğlu, Ali, Osman Mutlu, Firat Duruşan, Onur Uca, Alaeddin Gürel, **Benjamin J. Radford**, Yaoyao Dai, Hansi Hettiarachchi, Niklas Stoehr, Tadashi Nomoto, Milena Slavcheva, Francielle Vargas, Aaqib Javid, Fatih Beyhan, and Erdem Yörük (2022). "Extended Multilingual Protest News Detection - Shared Task 1, CASE 2021 and 2022". *Proceedings of the 5th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE)*. Abu Dhabi, United Arab Emirates (Hybrid). Association for Computational Linguistics, pp. 223–228.

**Radford, Benjamin J. (2022)**. "High Resolution Conflict Forecasting with Spatial Convolutions and Long Short-Term Memory". *International Interactions*, pp. 1–20. doi: 10.1080/03050629.2022.2031182.

Gao, Jingjing (Graduate Student Co-Author) and **Benjamin J. Radford (2021)**. "Death by Political Party: The Relationship Between COVID-19 Deaths and Political Party Affiliation". *World Medical & Health Policy* 13, pp. 224–249. doi: 10.1002/wmh3.435.

Halterman, Andrew and **Benjamin J. Radford (2021)**. "Few-Shot Upsampling for Protest Size Detection". *Findings of the Association for Computational Linguistics ACL-IJCNLP 2021*, pp. 3713–3720. doi: 10.18653/v1/2021.findings-acl.325.

**Radford, Benjamin J. (2021)**. "Automated Dictionary Generation for Political Event Coding". *Political Science Research and Methods* 9.1, pp. 157–171. doi: 10.1017/psrm.2019.1.

**Radford, Benjamin J. (2021)**. "CASE 2021 Task 2: Zero-Shot Classification of Fine-Grained Sociopolitical Events with Transformer Models". *Proceedings of the 4th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2021)*, pp. 203–207. doi: 10.18653/v1/2021.case-1.25.

**Radford, Benjamin J. (2021)**. "Regressing Location on Text for Probabilistic Geocoding". *Proceedings of the 4th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2021)*, pp. 53–57. doi: 10.18653/v1/2021.case-1.8.

**Radford, Benjamin J. (2020)**. "Seeing the Forest and the Trees: Detection and Cross-Document Coreference Resolution of Militarized Interstate Disputes". *Proceedings of AESPEN 2020, LREC 2020*, pp. 35–41.

**Radford, Benjamin J. (2019)**. "Multitask Models for Supervised Protest Detection in Texts". *Working Notes of CLEF 2019* 2380.

Minhas, Shahryar and **Benjamin J. Radford (2017)**. "Enemy at the Gates Variation in Economic Growth from Civil Conflict". *Journal of Conflict Resolution* 61.10, pp. 2105–2129.

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## Reports (Not Refereed)

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Richardson, Bartley D., Shawn E. Davis, and **Benjamin J. Radford (2018)**. "Sequence Aggregation Rules for Anomaly Detection in Computer Network Traffic". Presented at the 2018 ASA Symposium on Data Science and Statistics. url: <https://arxiv.org/abs/1805.03735>.

Richardson, Bartley D., **Benjamin J. Radford**, Shawn E. Davis, Keegan Hines, and David Pekarek (2018). "Anomaly Detection in Cyber Network Data Using a Cyber Language Approach". Presented at the 2018 ASA Symposium on Data Science and Statistics. url: <https://arxiv.org/abs/1808.10742>.

**Radford, Benjamin J.**, Leonardo Apolonio, Antonio Trias, and Jim A. Simpson (2017). "Network Traffic Anomaly Detection Using Recurrent Neural Networks". Presented at the 2017 MSS National Symposium on Sensor & Data Fusion. url: <https://arxiv.org/abs/1803.10769>.

Beger, Andreas, **Benjamin J. Radford**, and Michael D. Ward (2015). "Small-scale prediction of IEDs in Afghanistan using split-population duration regression". Prepared for the Office of Naval Research.

Beger, Andreas, Joshua Cutler, Matthew Dickenson, Cassy Dorff, **Benjamin J. Radford**, and Michael D. Ward (2013). "Comparing GDELT and ICEWS Event Data". Published online. url: [https://www.researchgate.net/publication/303211430\\_Comparing\\_GDELT\\_and\\_ICEWS\\_event\\_data](https://www.researchgate.net/publication/303211430_Comparing_GDELT_and_ICEWS_event_data).

**Radford, Benjamin J. (2010)**. "The Evolution of US Policy Towards Iran's Nuclear Program: Lessons for the Obama Administration". *UNC Asheville Journal of Undergraduate Research*.

**Radford, Benjamin J. (2008)**. "Iran Likely to Take Accusatory Stance at CWC Review Conference". *WMD Insights* April, pp. 39–43.

**Radford, Benjamin J.** and Leonard Spector (2008). "Algeria, Emirates Plan Nonproliferation-Friendly Nuclear Programs; Egypt Keeps Fuel Cycle Options Open, Rejects Expanded IAEA Monitoring". *WMD Insights* June, pp. 2–7.

**Radford, Benjamin J.** and Leonard Spector (2008). "Summary of Recent United Nations Security Council, European Union, and United States Sanctions Against Iran". *WMD Insights* April, pp. 44–50.

## Software

**mmtsne** 2017  
A package for estimating *multiple maps t-distributed stochastic neighbor embedding* (multiple maps t-SNE) models in R. Open source and available on CRAN: <https://cran.r-project.org/package=mmtsne>

## External Grants Obtained

**PI.** National Security Agency. \$96,334. 2022  
*Forecasting Security Updates to Identify Vulnerable Software*  
**Senior/Key Participant.** National Science Foundation. \$1,000,000. 2019  
*Building the Federalism Data and Advanced Statistics Hub (F-DASH)*

## Internal Grants Obtained

**Co-PI.** UNC Charlotte School of Data Science. \$15,000. 2022  
*The Evolution of Intellectual Elite's Immigration Attitudes*  
**PI.** UNC Charlotte Faculty Research Grant. \$8,000. 2022  
*From Protest to Tragedy—Violence Escalation in Space and Time*  
**Co-PI.** UNC Charlotte 12-Month Planning Grant. \$25,000. 2020  
*Peace And Conflict Innovations Laboratory to Study Computational Propaganda*  
**Recipient.** Duke University Graduate Studies Fellowship. 2011–2016  
**Recipient.** Duke University Graduate School Conference Travel Fellowship. 2013, 14, 15

## External Grant Submissions

**Co-PI.** NSF AIB. \$405,720. 2022  
*Attributing Policies to Actors through Semantic Content Evaluation*  
**Co-PI.** Russell Sage Foundation. \$50,000. 2022  
*How social scientists learned to stop worrying and love immigration*  
**Co-PI.** DARPA. \$1,000,000. 2021  
*CANA-Dip: Credibility-Aware Negotiation Agent for Diplomacy*  
**Co-PI.** NSF. \$1,000,000. 2021  
*PIPP Phase I: Preventing Pre-Emergence of Zoonotic Pathogens: Detection, Evolution, Ecosystems, Social Behavior and Education*  
**Co-PI.** NSF. \$290,842. 2021  
*The Language of Neighborhoods: A Predictive and Analytical Framework*  
**Co-PI.** DARPA. \$1,205,105. 2020  
*eMPiRIC: Modeling Population Response to Information Campaigns*  
**Co-PI.** NSF. \$19,996,313. 2020  
*'AI for All' Institute: Bringing Diversity in AI Workforce Readiness, Research, and Outreach*  
**Co-PI.** DoD. \$444,534. 2020  
*TRISS: Task-Oriented Robust Intelligent Assistant for System Safety*  
**Co-PI.** William T. Grant Foundation. \$996,201. 2020  
*Building the Federalism Data and Advanced Statistics Hub*  
**Co-PI.** NCSU Laboratory for Analytic Sciences. \$71,314. 2020  
*Improving Translation Rigor via Reinforcement Learning and Machine Translation Quality Estimation*

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| <b>Co-PI.</b> UNC System Research Opportunities Initiative RFP. Budget not required.<br><i>Machine Intelligence and Security Studies Lab (MISSL)</i>                                    | 2020 |
| <b>PI.</b> DARPA Young Faculty Award. Budget not required.<br><i>Event Graph Inference from Text Corpora</i>  | 2019 |
| <b>Co-PI.</b> DoD Basic Research Program for HBCU/MI. \$658,946.<br><i>Surveillance, Conflict, and Dissent: New Data, Methods, and Theory for the Information Era</i>                   | 2019 |
| <b>Co-PI.</b> UNC System Research Opportunities Initiative RFP. Budget not required.<br><i>Peace and Conflict Innovations Laboratory to Study Computational Propaganda</i>              | 2019 |
| <b>Co-PI.</b> UNC Undergraduate Research Office. \$25,238.<br><i>Introduction to Open Science for Undergraduates: Teaching and Foundations of Transparent and Reproducible Research</i> | 2019 |

## Internal Grant Submissions

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| <b>PI.</b> UNC Charlotte Faculty Research Grant. \$8,000.<br><i>Multi-Document Detection of Complex Social Events</i> | 2020 |
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## Invited Talks

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|---|------|
| UNC Charlotte CyberDNA<br><i>Machine Learning Approaches for Cybersecurity Incident Measurement</i>   | 2021 |
| Georgia Tech School of Electrical and Computer Engineering<br><i>Machine Learning Approaches for Cybersecurity Incident Measurement</i>   | 2019 |
| DC Digital Analytics<br><i>Multilingual Text Classification with Multitask Neural Networks</i>  | 2018 |
| Symposium on Data Science and Statistics, American Statistical Association<br><i>Network Traffic Anomaly Detection Using Recurrent Neural Networks</i>  | 2018 |
| Conference on Applied Statistics in Defense, American Statistical Association<br><i>Cyberlanguage: Enhancing cybersecurity through statistical and natural language processing techniques</i> | 2016 |

## Patents Pending

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| <i>A method of using artificial intelligence to predict the treatability of water</i><br>With Amir Younis Alansari and James E. Amburgey | Pending |
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## Working Papers

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|---|
| Atkinson, Mary Layton and <b>Benjamin J. Radford</b> ( <b>Manuscript in preparation</b> ). "Measuring the Ideology of Major Laws".  |
| Kustov, Alexander, Yaoyao Dai, <b>Benjamin J. Radford</b> , and Candace Miller ( <b>Manuscript in preparation</b> ). "How Social Scientists Learned to Stop Worrying and Love Immigration". |
| <b>Radford, Benjamin J.</b> , Mya Fernandez, Hanif Sajid, Niklas Stoehr, and Aaron Schein ( <b>Manuscript in preparation</b> ). "The Russian Tank Problem".                                 |
| Dai, Yaoyao, Jingjing Gao, and <b>Benjamin J. Radford</b> ( <b>Under review</b> ). "From Fear to Hate: Sources of Anti-Asian Sentiment During COVID-19".                                    |
| Stoehr, Niklas, <b>Benjamin J. Radford</b> , Ryan Cotterell, and Aaron Schein ( <b>Under review</b> ). "The Ordered Matrix Dirichlet for Modeling Ordinal Dynamics".                        |

## Conference Presentations

|  |      |
|--|------|
| <b>Annual Meeting of the American Political Science Association</b><br><i>Measuring the Ideology of Major Laws</i> | 2022 |
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| <i>How Social Scientists Learn to Stop Worrying and Love Immigration</i>                         | 2022         |
| <i>What is Word Embedding and How Can it Be Useful for Social Science Research</i>               | 2021         |
| <i>Identifying Party Families with Time Series Multilingual Word Embedding</i>                   | 2021         |
| <i>Automated Dictionary Generation for Political Event Coding</i>                                | 2018         |
| <i>Going Ballistic: Nuclear Bursts in North Korea and Outbursts on Twitter</i>                   | 2018         |
| <i>Improving Multilingual Comparability with Transfer Learning</i>                               | 2018         |
| <i>Big Data for the Dark Side: Mapping the Rebel Alliance</i>                                    | 2015         |
| <b>Annual Meeting of the Society for Political Methodology</b>                                   |              |
| <i>How Social Scientists Learn to Stop Worrying and Love Immigration</i>                         | 2022         |
| <i>Towards Better Human Annotation</i>   | 2022         |
| <b>CASE Workshop at EMNLP</b>  |              |
| <i>Political Event Coding as Text-to-Text Sequence Generation</i>                                | 2022         |
| <i>Extended Multilingual Protest News Detection – Shared Task 1, CASE 2021 and 2022</i>          | 2022         |
| <b>Annual Meeting of the International Studies Association</b>                                   |              |
| <i>Why Do You Dress Like Us?</i>   | 2022         |
| <i>High Resolution Conflict Forecasting with Spatial Convolutions and Long Short-Term Memory</i> | 2022         |
| <i>Tactics of Insurgency and the Micro-Dynamics of IED Use</i>                                   | 2015         |
| <b>Annual Meeting of the Southern Political Science Association</b>                              |              |
| <i>From Fear to Hate: Anti-Asian Sentiment During COVID-19</i>                                   | 2022         |
| <i>Spatial Predictors of Protest Suppression Events</i>  | 2020         |
| <i>Multilingual Word Embedding for Zero-Shot Text Classification</i>                             | 2019         |
| <i>Primed for Defense: How I Learned to Start Worrying and Love the Bomb</i>                     | 2013         |
| <b>CASE Workshop at ACL-IJCNLP</b>   |              |
| <i>Regressing Location on Text for Probabilistic Geocoding</i>                                   | 2021         |
| <i>Few-Shot Upsampling for Protest Size Detection</i>  | 2021         |
| <i>CASE 2021 Task 2: Zero-Shot Classification...</i>   | 2021         |
| <b>Violence Early Warning System (ViEWS) Prediction Competition.</b>                             |              |
| <i>High-Resolution Conflict Forecasting...</i>   | 2020         |
| <b>Conference on Language Resources and Evaluation, AESPEN Workshop</b>                          |              |
| <i>Seeing the Forest and the Trees...</i>  | 2020         |
| <b>Conference on New Directions in Analyzing Text as Data</b>                                    | 2018         |
| <b>Military Sensing Symposium, National Symposium on Sensor &amp; Data Fusion</b>                | 2017         |
| <b>Annual Meeting of the Midwest Political Science Association</b>                               | 2013, 14, 15 |
| <b>Duke-UNC International Relations Workshop</b>   | 2014         |

## Teaching Experience

### Courses Taught

|   |               |
|---|---------------|
| <b>Instructor of Record</b>   | Charlotte, NC |
| <b>University of North Carolina at Charlotte</b>  | 2019–Present  |
| <ul style="list-style-type: none"> <li>• PPOL 8101: <i>Data Management and Basic Analytics</i></li> <li>• GRAD 8009 &amp; 6009: <i>Data Science for Social Scientific Inquiry</i></li> <li>• GRAD 6101 &amp; 8101: <i>Linear Regression</i></li> <li>• GRAD 6103 &amp; 8103: <i>Classificatory Methods &amp; Time Series</i></li> <li>• POLS 2220: <i>Political Science Research Methods</i></li> <li>• POLS 3154: <i>Cyberspace &amp; Politics</i></li> <li>• POLS 3700: <i>Honors Research</i></li> <li>• POLS 3800: <i>Independent Study</i></li> <li>• POLS 4700: <i>Honors Thesis</i></li> </ul> |               |
| <b>Invited Lecture</b>  | Arlington, VA |
| <b>George Mason University</b>  | Nov. 2017     |
| <ul style="list-style-type: none"> <li>• CSI 899: <i>Computational Research and Applications</i></li> </ul>   |               |
| <b>Teaching Assistant for Professor Kyle Beardsley</b>  | Durham, NC    |
| <b>Duke University</b>  | 2013          |
| <ul style="list-style-type: none"> <li>• POLSCI 130: <i>Introduction to Political Inquiry</i></li> </ul>  |               |

## Mentoring

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|---|-------------|
| <b>Dissertation Committee Member.</b> Robert Pinka.   | In Progress |
| <b>Dissertation Committee Member.</b> Ivan Flores-Martinez.   | In Progress |
| <b>Dissertation Committee Member.</b> Dr. Jingjing Gao.<br><i>Social Media Use in Public Health and Policy Study</i>  | 2022        |
| <b>Honors Thesis Advisor.</b> Mya Fernandez.  | 2022        |
| <b>Honors Thesis Advisor.</b> Connor Frunzi.<br><i>On Autonomous Weapon Systems: Future Proliferation, The Arms Race, And Regulation</i>  | 2022        |
| <b>Honors Thesis Committee Member.</b> Scott Christensen.<br><i>A Spatial Analysis of Social Vulnerability, the COVID-19 Pandemic, and Income Gap Loans in Mecklenburg County, North Carolina</i> | 2021        |

## Service

### Professional Service

|   |      |
|---|------|
| <b>Organizing Committee Member,</b> The 5th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2022).  | 2022 |
| <b>Reviewer,</b> Nonprofit and Voluntary Sector Quarterly   | 2022 |
| <b>Reviewer,</b> Empirical Methods in Natural Language Processing 2022: <i>Unsupervised and Weakly-Supervised Methods in NLP</i>  | 2022 |
| <b>Reviewer,</b> International Interactions   | 2021 |
| <b>Reviewer,</b> American Journal of Political Science  | 2021 |
| <b>Reviewer,</b> American Journal of Preventive Medicine  | 2021 |
| <b>Program Committee Member, Reviewer,</b> The 4th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2021) the Association for Computational Linguistics. | 2021 |
| <b>Reviewer,</b> IEEE/ACM Transactions on Networking  | 2020 |
| <b>Panel Chair,</b> UNC Charlotte Cybersecurity Symposium   | 2020 |
| <b>Program Committee Member, Reviewer,</b> AESPEN LREC 2020   | 2020 |
| <b>Reviewer,</b> British Journal of Political Science   | 2020 |
| <b>Chair &amp; Discussant,</b> SPSA New Approaches in the Study of Terrorism and Civil War  | 2020 |
| <b>Reviewer,</b> IEEE: Transactions on Network and Service Management   | 2019 |
| <b>Reviewer,</b> Political Science Research & Methods   | 2018 |
| <b>Discussant,</b> APSA Panel on Prediction   | 2015 |
| <b>Reviewer,</b> International Studies Review   |      |

### University Service

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|--|--------------|
| <b>Non-voting Junior Faculty Observer,</b> Dept. Review Committee (POLS) | 2021–2022    |
| <b>Department Representative,</b> Faculty Council (POLS)                 | 2020–2021    |
| <b>Author &amp; Grader,</b> Qualifying Exam Committee (PPOL)             | 2020, 21, 22 |
| <b>Committee Member,</b> Speakers Committee (SDS)                        | 2021         |
| <b>Committee Member,</b> Awards Committee (POLS)                         | 2020–2021    |
| <b>Committee Member,</b> International Relations Search Committee (POLS) | 2020–2021    |
| <b>Committee Member,</b> Curriculum Review Committee (PPOL)              | 2020–2021    |

**Participant**, New Faculty Learning Community  
**Participant**, New Faculty Mentoring Program

2019–2020  
2019–2020

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## Public Service

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**Judge**, Northern Virginia Regional Science Fair 2019

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## Honors & Awards

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**Finalist**, Data Visualization Contest, Duke University 2013

**Graduated summa cum laude**, University of North Carolina at Asheville 2010

**Top Graduating Math Student**, University of North Carolina at Asheville 2010

**Distinction in International Studies**, University of North Carolina at Asheville 2010

**Finalist**, Hasbro NERF *Battle of the Ads* 2010

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## Professional Memberships

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American Political Science Association 2017, 18, 21, 22

Society for Political Methodology 2017, 18, 21, 22

Linguistic Data Consortium 2020, 21, 22

Association for Computational Linguistics 2021, 22