

Benjamin J. Radford

POLITICAL SCIENTIST · DATA SCIENTIST

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Education

Ph.D. in Political Science

Durham, NC

DUKE UNIVERSITY

2016

- Subfields: Political Methodology and Security, Peace, & Conflict
- Dissertation: *Automated Learning of Event Coding Dictionaries for Novel Domains with an Application to Cyberspace*
- Committee: Michael Ward (Chair), Kyle Beardsley, Scott de Marchi, and Mark Crescenzi (UNC)

M.A. in Political Science

Durham, NC

DUKE UNIVERSITY

2013

B.A. in Mathematics and International Studies

Asheville, NC

UNIVERSITY OF NORTH CAROLINA AT ASHEVILLE

2010

Research Interests

Substantive: Security & conflict, cybersecurity, WMD, counter-proliferation, event data, measurement.

Methodological: Machine learning, Bayesian statistics, natural language processing, forecasting & prediction.

Research Experience

Co-founder & Chief Scientist

Alexandria, VA

LEVELUP RESEARCH, LLC

2018–Present

Principal Investigator & Principal Data Scientist

Arlington, VA

DARPA I2O (Cyber Incident Attribution PROGRAM), SOTERA DEFENSE SOLUTIONS

2017–2018

Participant and Evaluator

Arlington, VA

DARPA PROBABILISTIC PROGRAMMING FOR ADVANCED MACHINE LEARNING SUMMER SCHOOL

2017

Principal Data Scientist

Arlington, VA

DARPA I2O (Network Defense PROGRAM), SOTERA DEFENSE SOLUTIONS

2016–2018

Senior Data Scientist

Arlington, VA

DARPA I2O (Network Defense PROGRAM), CAERUS ASSOCIATES

2015–2016

Peer-Reviewed Publications

“Automated Dictionary Generation for Political Event Coding”

2018

Accepted at *Political Science Research and Methods*.

“Enemy at the Gates: Variation in Economic Growth from Civil Conflict.”

2017

Journal of Conflict Resolution: 61(10):2105-2129.

with Shahryar Minhas.

Technical and Policy Publications

“Network Traffic Anomaly Detection Using Recurrent Neural Networks”

2017

Proceedings of the 2017 MSS National Symposium on Sensor & Data Fusion. Available at arXiv:1803.10769.

with Leonardo Apolonio, Antonio Trias, and Jim A. Simpson.

- “Anomaly Detection in Cyber Network Data Using a Cyber Language Approach”** 2018
 Prepared for the 2018 ASA Symposium on Data Science and Statistics. Available at arXiv:1808.10742.
 with Bartley D. Richardson, Shawn E. Davis, Keegan Hines, and David Pekarek.
- “Sequence Aggregation Rules for Anomaly Detection in Computer Network Traffic”** 2018
 Prepared for the 2018 ASA Symposium on Data Science and Statistics. Available at arXiv:1805.03735.
 with Bartley D. Richardson and Shawn E. Davis.
- “Small-scale prediction of IEDs in Afghanistan using split-population duration regression”** 2015
 Submitted to the Office of Naval Research.
 with Andreas Beger and Michael D. Ward.
- “Comparing GDELT and ICEWS Event Data”** 2013
 Published online. Available at Research Gate.
 with Michael D. Ward, Andreas Beger, Josh Cutler, Matthew Dickenson, and Cassy Dorff.
- “The Evolution of US Policy towards Iran’s Nuclear Program: Lessons for the Obama Administration”** 2010
UNC Asheville Journal of Undergraduate Research.
- “Iran Likely to Take Accusatory Stance at CWC Review Conference”** 2008
WMD Insights (April): 39-43.
- “Summary of Recent United Nations Security Council, European Union, and United States Sanctions Against Iran”** 2008
WMD Insights (April): 44-50.
 with Leonard Spector.
- “Algeria, Emirates Plan Nonproliferation-Friendly Nuclear Programs; Egypt Keeps Fuel Cycle Options Open, Rejects Expanded IAEA Monitoring”** 2008
WMD Insights (June): 2-7.
 with Leonard Spector.

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>

Working Papers

- “Multilingual Word Embedding for Zero-Shot Text Classification”** *Working paper*
 with Yaoyao Dai.
- “Varieties of Authoritarianism and Peace through Trade, 1950-1999”** *Under review*
 with Joseph Grieco and Christopher Gelpi.

Works in Progress

- “Structural Embedding for Explainable Word Vectors”** *with Yaoyao Dai*
- “Forecasting Conflicts in Space and Time with Recurrent CNNs”**
- “Inferring High-Resolution Latent Social Indicators from Unstructured Data”**

Conference Presentations

Conference on New Directions in Analyzing Text as Data	2018
Annual Meeting of the American Political Science Association	2015, 2018
Military Sensing Symposium, National Symposium on Sensor & Data Fusion	2017
Annual Meeting of the International Studies Association	2015
Annual Meeting of the Midwest Political Science Association	2013, 2014, 2015
Duke-UNC International Relations Workshop	2014
Annual Meeting of the Southern Political Science Association	2013

Invited Talks

Symposium on Data Science and Statistics, American Statistical Association	2018
Conference on Applied Statistics in Defense, American Statistical Association	2016

Teaching Experience

Invited Lecture GEORGE MASON UNIVERSITY CSI 899: <i>Computational Research and Applications</i>	Arlington, VA Nov. 2017
Teaching Assistant for Professor Kyle Beardsley DUKE UNIVERSITY POLSCI 130: <i>Introduction to Political Inquiry</i>	Durham, NC 2013

Academic Service

Reviewer

- IEEE: TRANSACTIONS ON NETWORK AND SERVICE MANAGEMENT
- POLITICAL SCIENCE RESEARCH & METHODS
- INTERNATIONAL STUDIES REVIEW

Discussant

ANNUAL MEETING OF THE AMERICAN POLITICAL SCIENCE ASSOCIATION Panel on Prediction	2015
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Grants, Honors, & Awards

Graduate Studies Fellowship , Duke University	2011–2016
Graduate School Conference Travel Fellowship , Duke University	2015, 14, 13
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 <i>Battle of the Ads</i>	2010