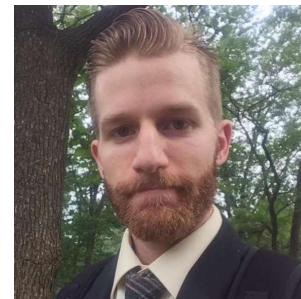


ANDREW JAMES REAGAN

Amherst, MA
info@andyreagan.com
andyreagan.github.io



POSITIONS

MassMutual: Senior Data Scientist

Feb 2017–current

Lead data science projects with high-impact business ROI. Chief Data Strategist for the Living Well Program, and AI Lead on two Lighthouse programs bringing modern machine learning into enterprise practice. Mentor to members of the Junior Data Science program.

- AI Lighthouse Programs: AI Lead on two enterprise initiatives applying modern ML to core business problems (2024–current).
- Living Well Program CBA: Leading the cost-benefit analysis supporting the Living Well wellness platform and its expansion (2024–current).
- Living Well Rider on Whole Life: Chief Data Strategist for the launch of the Living Well Rider on Whole Life products (2024).
- WELL Rider: Envisioned and led as Lead Data Scientist & Project Technical Lead. Designed and built the backend system for accepting, transforming, and rewarding wearable health data (MET-h, sleep). Launched Term Rider in 38 states (2022–2023).
- LEMURS app: Technical lead and key participant in study design alongside UVM (2022–2023).
- Wearable Pilot: Inherited and successfully launched pilot program to collect wearables data (2021).
- Haven Simple & Haven Term 4.0 Underwriting Simulation Lead (2022).
- Consumer Insights Platform: Transformed Splinkr model into platform now core to marketing department (2018).

University of California Berkeley: Course design + instruction

Jan 2016–current

Teach, grade, and administer two 15-seat sections of W209: Data Visualization and Communication, on a continuous basis, a core course in the Master's Program in Data Science (MIDS). Re-developed course content for Fall 2017, including recorded lectures and software tutorials for advanced D3 and user-centered visualization design.

Quokka Labs Inc: Founder & CEO

Jul 2015–Dec 2020

Lead a start-up with Dr. Chris Danforth and Dr. Peter Dodds, focusing on commercializing our research in complex systems and big data.

Smith College: Lecturer

Fall 2018

Taught Statistics and Data Science (SDS) 291: Multiple Regressions to undergraduate students at Smith College in Northampton, MA. This course covers linear regression through logistic regression, with a focus on applications to real-world data science problems.

University of Vermont: PhD Candidate

Jan 2012–May 2017

Utilized the Vermont Advanced Computing Core supercomputer to perform analyses of large structured data sets (e.g. Twitter gardenhose feed). Led independent data science projects that became widely cited, rebuilt hedonometer.org, contributed to over 15 publications, and had fun doing it all. Prepared, taught, graded, and administered two 35-seat sections of calculus.

EDUCATION

University of Vermont, Burlington VT

May 2017

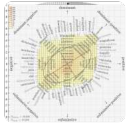
Doctorate of Philosophy, Applied Mathematics

Advisors: Dr. Chris Danforth, Dr. Peter Dodds, Dr. Yves Dubief

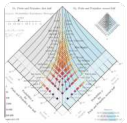
Concentration: Complex Systems

Dissertation: Towards a Science of Human Stories

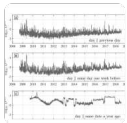
PUBLICATIONS



29. Ousiometrics and Telegnomics: The essence of meaning conforms to a two-dimensional powerful-weak and dangerous-safe framework with diverse corpora presenting a safety bias 2021
Peter Sheridan Dodds, Thayer Alshaabi, Mikaela Irene Fudolig, Julia Witte Zimmerman, Juniper Lovato, et. al



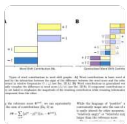
28. Probability-turbulence divergence: A tunable allotaxonomic instrument for comparing heavy-tailed categorical distributions 2020
Peter Sheridan Dodds, Joshua Minot, Michael Arnold, Thayer Alshaabi, Jane Adams, et. al



27. Long-term word frequency dynamics derived from Twitter are corrupted: A bespoke approach to detecting and removing pathologies in ensembles of time series 2020
Peter Sheridan Dodds, Joshua Minot, Michael Arnold, Thayer Alshaabi, Jane Adams, et. al



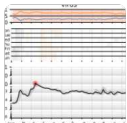
26. Computational timeline reconstruction of the stories surrounding Trump: Story turbulence, narrative control, and collective chronopathy 2020
Peter Sheridan Dodds, Joshua Minot, Michael Arnold, Thayer Alshaabi, Jane Adams, et. al



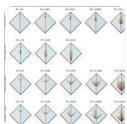
25. Generalized Word Shift Graphs: A Method for Visualizing and Explaining Pairwise Comparisons Between Texts 2021
Ryan Gallagher, Morgan Frank, Lewis Mitchell, Aaron Schwartz, Andy Reagan, et. al



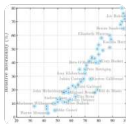
24. Storywrangler: A massive exploratorium for sociolinguistic, cultural, socioeconomic, and political timelines using Twitter 2021
Thayer Alshaabi, Jane Adams, Michael Arnold, Joshua Minot, David Dewhurst, et. al



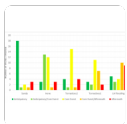
23. How the world's collective attention is being paid to a pandemic: COVID-19 related n-gram time series for 24 languages on Twitter 2021
Thayer Alshaabi, Michael Arnold, Joshua Minot, Jane Adams, David Dewhurst, et. al



22. Allotaxonomy and rank-turbulence divergence: A universal instrument for comparing complex systems 2020
Peter Sheridan Dodds, Joshua Minot, Michael Arnold, Thayer Alshaabi, Jane Adams, et. al



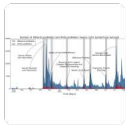
21. Fame and Ultrafame: Measuring and comparing daily levels of 'being talked about' for United States' presidents, their rivals, God, countries, and K-pop 2019
Peter Sheridan Dodds, Joshua Minot, Michael Arnold, Thayer Alshaabi, Jane Adams, et. al



20. Social media usage patterns during natural hazards. 2019
Meredith Niles, Benjamin Emery, Andy Reagan, Peter Sheridan Dodds, Chris Danforth



19. English Verb Regularization in Books and Tweets 2018
Tyler Gray, Andy Reagan, Peter Sheridan Dodds, Chris Danforth



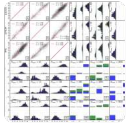
18. Divergent Discourse Between Protests and Counter-Protests: #BlackLivesMatter and #AllLivesMatter 2016

Ryan Gallagher, Andy Reagan, Chris Danforth, Peter Sheridan Dodds



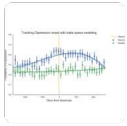
17. Towards a science of human stories: using sentiment analysis and emotional arcs to understand the building blocks of complex social systems 2017

Andy Reagan



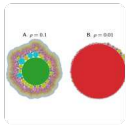
16. Sentiment analysis methods for understanding large-scale texts: A case for using continuum-scored words and word shift graphs 2017

Andy Reagan, Chris Danforth, Brian Tivnan, Jake Williams, Peter Sheridan Dodds



15. Forecasting the onset and course of mental illness with Twitter data 2017

Andrew G. Reece, Andy Reagan, Katharina L. M. Lix, Peter Sheridan Dodds, Chris Danforth, et. al



14. Simon's fundamental rich-gets-richer model entails a dominant first-mover advantage 2017

Peter Sheridan Dodds, David Dewhurst, Lewis Mitchell, Andy Reagan, Jake Williams, et. al



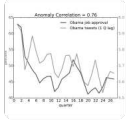
13. The Lexicocalorimeter: Gauging public health through caloric input and output on social media 2017

Sharon Alajajian, Jake Williams, Andy Reagan, Stephen C. Alajajian, Morgan Frank, et. al



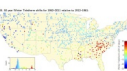
12. The emotional arcs of stories are dominated by six basic shapes 2016

Andy Reagan, Lewis Mitchell, Dilan Kiley, Chris Danforth, Peter Sheridan Dodds



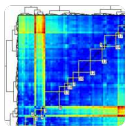
11. Public opinion polling with Twitter 2016

Emily Cody, Andy Reagan, Peter Sheridan Dodds, Chris Danforth



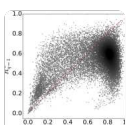
10. Tracking climate change through the spatiotemporal dynamics of the Teletherms: The statistically hottest and coldest days of the year 2016

Peter Sheridan Dodds, Lewis Mitchell, Andy Reagan, Chris Danforth



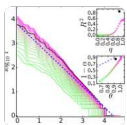
9. Game story space of professional sports: Australian Rules Football 2016

Dilan Kiley, Andy Reagan, Lewis Mitchell, Chris Danforth, Peter Sheridan Dodds



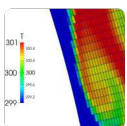
8. Selection models of language production support informed text partitioning: an intuitive and practical bag-of-phrases framework for text analysis 2016

Jake Williams, Jim Bagrow, Andy Reagan, Sharon Alajajian, Chris Danforth, et. al



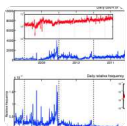
7. Zipf's law is a consequence of coherent language production 2016

Jake Williams, Jim Bagrow, Andy Reagan, Sharon Alajajian, Chris Danforth, et. al



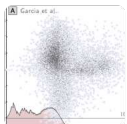
6. Predicting Flow Reversals in a Computational Fluid Dynamics Simulated Thermosyphon using Data Assimilation 2015

Andy Reagan, Yves Dubief, Peter Sheridan Dodds, Chris Danforth



5. Climate change sentiment on Twitter: An unsolicited public opinion poll 2015

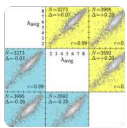
Emily Cody, Andy Reagan, Lewis Mitchell, Peter Sheridan Dodds, Chris Danforth



4. Reply to Garcia et al.: Common mistakes in measuring frequency dependent word characteristics

2015

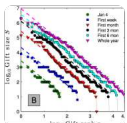
Peter Sheridan Dodds, Suma Desu, Morgan Frank, Andy Reagan, Jake Williams, et. al



3. Human language reveals a universal positivity bias

2015

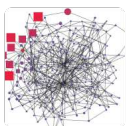
Peter Sheridan Dodds, Suma Desu, Morgan Frank, Andy Reagan, Jake Williams, et. al



2. Collective Philanthropy: Describing and Modeling the Ecology of Giving

2014

William L. Gottesman, Andy Reagan, Peter Sheridan Dodds



1. Shadow networks: Discovering hidden nodes with models of information flow

2013

Jim Bagrow, Suma Desu, Morgan Frank, Narine Manukyan, Lewis Mitchell, et. al

SELECTED PRESENTATIONS

WELL Rider: Wellness Enhanced Life & Longevity Rider.

MassMutual + UVM Seminar, Amherst, MA + Remote

June 2023

CIP: Developing the next generation consumer insights platform.

MassMutual DS Seminar, Amherst, MA

Fall 2019

AgentFlix: A smart matching system for advisors and leads.

Five College Stats and Data Science Meetup, Amherst, MA

Apr 2018

Julia: Time to make the jump?

MassMutual DS Seminar, Amherst MA

Apr 2018

UMass Amherst Industry Research Discussion Panel

Amherst, MA

Mar 2018

Altair: Declarative Visualization in Python, Why and How

Five College DataFest, Amherst MA

Mar 2018

Docker for DS: How it works, strengths and weaknesses

MassMutual DS Seminar, Amherst MA

Feb 2018

Bayesian banditing algorithms for intelligent pilots

MassMutual DS Seminar, Amherst MA

Sep 2017

A New Science of Stories

IBM Watson, Yorktown Heights, NY

Apr 2016

Beyond Tufte: Interactive visualization for the 21st century

VT Coders Meetup, Burlington VT

Feb 2016

The emotional impact of words: comparison, critique, and benchmark of major data sets

Computer Science Research Days, UVM, Burlington VT

Sep 2015

Thermosyphon flow prediction: predicting flow reversals in a computational fluid dynamics simulated thermosyphon using data assimilation

SIAM Dynamical Systems, Snowbird UT

Jun 2015

Shapes of stories: characterizing the emotional trajectories of stories into a hierarchy of basic shapes

UVM Student Research Conference, Burlington VT

April 2015

d3.js: javascripting and data visualization

VT Coders Meetup, Winooski VT (60+ attendees)

Nov 2014

Climate Parameter Estimation with DA and Genetic Algorithms

UVM Computational Storylab Group, Burlington VT

Feb 2014

Making Beautiful Web Graphics with D3 + MATLAB

UVM Student Complexity (and Pizza) Seminar, Burlington VT

Jan 2014

Thermosyphon Flow Prediction

Master's Thesis Oral Defense, Burlington VT

Dec 2013

An Introduction to L^AT_EX

UVM Grad College Professional Development Seminar, Burlington VT

Jan 2013

Understanding the Natural Structure of Human Logic

Student Complexity Research and Pizza Seminar, Burlington VT

Oct 2012

Uncertainty of Rogue Wave Formation in the Nonlinear Schrödinger Equation

UVM Computational Storylab Group, Burlington VT

Oct 2012

A Computational Approach to Iron Metabolism in Breast Epithelial Cells

Joint Mathematics Meeting, Boston MA

January 2013

Mathematically Informed Hypothesis Generation for Cancer Proliferation

Modeling and Simulation in Systems Biology REU

August 2011

Symposium, Blacksburg VA

PRESS



UVM, MassMutual Renew Partnership to Help People Live Healthier, More Enjoyable Lives

MassMutual, November 15, 2023



MassMutual introduces new wellness program

Coverager, September 11, 2023



UC Berkeley professors use Observable to teach data visualization at scale

ObservableHQ Blog, June 7, 2023



MassMutual Explores Health Data from Wearables

InformationWeek, September 16, 2020



Ups and Downs, Or how to graph a book.

Lapham's Quarterly, July 18, 2019



How your social media betrays your mood

BBC, February 1, 2018



Teenage suicide is extremely difficult to predict. That's why some experts are turning to machines for help.

Washington Post, September 25, 2017



MassMutual data scientists help community make better decisions through modern analytics

MassLive, September 1, 2017



Inside the Lab That's Quantifying Happiness

Outside Magazine, August 12, 2017



There Are 6 Basic Emotional 'Shapes' of Stories

New York Magazine, November 28, 2016



Researchers have quantified what makes us love Harry Potter

Washington Post, November 25, 2016



When the stories add up: the six narrative arcs in fiction

Aeon, November 18, 2016



Narrative Machines

Story Grid, August 25, 2016



When computers read the canon

Boston Globe, July 22, 2016



Story Core: UVM Researchers Use Data Mining To Identify Emotional Story Arcs

Vermont Public Radio, July 21, 2016



Three, six or 36: how many basic plots are there in all stories ever written?

The Guardian, July 13, 2016



The Six Main Arcs in Storytelling, as Identified by an A.I.

The Atlantic, July 12, 2016



Data Mining Novels Reveals the Six Basic Emotional Arcs of Storytelling

MIT Technology Review, July 6, 2016



6 Story Arcs Define Western Literature, Data-Mining Study Reveals

Discover Magazine, July 6, 2016



Twitter can tell which states love jogging & which are eating hot dogs

Washington Post, July 29, 2015



How the New Science of Game Stories Could Change the Future of Sports

MIT Technology Review, July 27, 2015



Do you live in a chocolate candy state or a green bean borough? Interactive Twitter maps reveal each state's favourite snacks and activities

Daily Mail, July 22, 2015



According to the Words, the News Is Actually Good

New York Times, February 23, 2015



Spanish is the happiest language

Science Magazine, February 9, 2015



The Math of Charity

Wired Magazine, July 17, 2013

SERVICE

Five College DataFest Judging Panel	2025
Volunteer Firefighter with Shutesbury Fire Dept	2022-current
Five College DataFest workshop leader	2023
Mt Holyoke College guest lecturer on GAM and applications in industry	2019
Smith Hackathon and Five College DataFest session leader	2018
Pioneer Valley Planning Commission dashboard	2017
Contributions to Cookiecutter Data Science	2017
Contributions to MixedModels.jl	2017
Open source Python package for sentiment analysis (sentidict)	2017
Advisor for undergraduate students in Math 52 final projects	2015–2017
Vermont Advanced Computing Core documentation and tutorials	2015–2017
Complex Systems website database design, construction, administrator, and front end	2014–2020
UVM Mathematics Department Graduate Committee	2013–2014
Student Complexity Research [and Pizza] Seminar (SCRaPS) Organizer	2013–2014
Volunteer at Bike Recycle Vermont	2013
Cycled across the USA with Bike and Build, benefiting Habitat for Humanity	2010
My trip alone donated close to \$90,000 to affordable housing and spent 10 days building with Habitat affiliates	