

Alex Gottlieb

Dartmouth College
Program in Ecology, Evolution, Ecosystems and Society
012 Fairchild Hall, Hanover, NH 03755
github.com/alex-gottlieb

alexander.r.gottlieb.gr@dartmouth.edu
(412) 215-4410

EDUCATION

Dartmouth College, Hanover, NH

- PhD in Ecology, Evolution, Ecosystems and Society, in progress
- Advisor: Justin Mankin

Princeton University, Princeton, NJ

- B.A. in Politics, *summa cum laude*, 2018
- Certificates in Applications of Computing, Statistics & Machine Learning
- Cumulative GPA: 3.84
- Thesis: “Private Partisan, Public Moderate: Preference Falsification on Twitter”

RESEARCH

“Private Partisan, Public Moderate: Preference Falsification on Twitter”, Academic Year 2017-18

- Senior thesis examining how political composition of individuals’ social networks affects propensity to publicly express preferences inconsistent with privately-held beliefs
- Created a unique dataset of Tweets and news articles labeled by ideological slant by crowd-sourcing labeling task through Amazon Mechanical Turk
- Achieved benchmark accuracy in classification of Tweets and news articles by ideological slant by training and tuning Long Short-Term Memory recurrent neural networks using R interface to Keras deep learning framework on Amazon EC2 instances
- Created a suite of functions and processing pipeline in R to efficiently scrape, process, and classify Tweets of over 1 million Twitter users, as well as calculate computational statistics about their follower networks
- Received *New York Herald Prize* for best senior thesis on a topic of contemporaneous interest in the domestic or foreign policy of the United States
- Advisor: Andrew Guess

“Ideological Segregation on Social Media”, Spring 2016

- Junior paper examining how the political valence of a topic affects the level of communication between Twitter users of various ideological groups
- Scraped over 500,000 Tweets in real time through Twitter’s REST API for 8 distinct events (4 political, 4 non-political)
- Deployed a latent space Bayesian Spatial Following model to estimate Bayesian ideal points of ideology for 3.8 million politically active Twitter users
- Advisor: Omar Wasow

WORK EXPERIENCE

Data Science Contractor, May 2019-present

RES Energy, Broomfield, CO

- Built pipeline to automatically georeference Industrial Assessment Center maps and match individual assessments to database of over 400,000 businesses
- Built a neural network architecture to detect existing solar panel installations from satellite imagery

Junior Data Scientist, June 2017-May 2019

Kimetrica International, Denver, CO

- Built a convolutional neural network model using TensorFlow and Keras to detect childhood malnutrition from facial imagery
- Used a combination of remote sensing data sources and panel survey data to map the extent of a drought in Ethiopia, its impacts on agricultural households' livelihoods, and the coping mechanisms that increased economic resilience
- Created a web scraping and text processing pipeline to automatically gather and analyze social media data and news stories from Myanmar

GIS Intern, September 2018-February 2019

Natural Resources Council of Maine, Augusta, ME

- Volunteer project to conduct inventory of water resources contained within Maine's Public Reserved Lands
- Compiled first ever shapefile of 37 Public Reserved Land boundaries from national database of public land parcels using python (shapely, geopandas) and QGIS
- Overlaid Public Reserved Land boundaries on National Hydrography Dataset vector files to determine surface areas of ponds and lakes, lengths of streams and rivers, and fractions of shorelines protected within Public Reserved Lands

TECHNICAL SKILLS

- **Programming Languages and Software:** R (TensorFlow/Keras, data.table, glmnet, ggplot2, ggmap); python (TensorFlow/Keras, scikit-learn, numpy, pandas, geopandas, rasterio, shapely, GDAL, matplotlib); QGIS; MATLAB; LaTeX; Amazon Web Services EC2
- **Machine Learning:** object detection and classification; natural language processing and modeling; regression; clustering; feature engineering; dimensionality reduction
- **Selected Coursework:** Analysis of Big Data; Computing and Optimization; Data Structures and Algorithms; Neural Networks: Theory and Applications Probability Theory; Data, Models, and Uncertainty in the Natural Sciences; Advanced Statistics; Multivariable Calculus; Linear Algebra