

# Ian Stewart

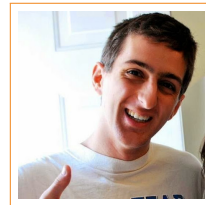
*PhD student in social computing.*

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*I study social phenomena in online communities, using language as a metric for variation and change. My work uses natural language processing to quantify written language variation.*

## Education

- 2015–present **Georgia Institute of Technology**, *Ph.D. in Human-Centered Computing*.  
Specialization in social computing.  
Research interests: natural language processing, computational sociolinguistics, language change.  
Advised by Jacob Eisenstein.
- 2010–2014 **Dartmouth College**, *A.B. Linguistics (cum laude), minor in Computer Science*.  
GPA: 3.78 (cum.) 3.90 (major)  
Thesis: "African American English syntax in Twitter."  
Advised by James Stanford and Sravana Reddy.

## Awards

- March 2017 **Honorable Mention**, NATIONAL SCIENCE FOUNDATION GRADUATE RESEARCH FELLOWSHIP.  
Runner-up in annual Graduate Research Fellowship competition. Award includes increased access to supercomputing resources.
- August 2016 **Tuition Reimbursement Award**, PACIFIC NORTHWEST NATIONAL LABORATORY..  
Awarded to PhD interns in the National Security Internship Program who demonstrated outstanding performance in their summer research project. Covers one semester of graduate school tuition.
- August 2015 **Great Promise Award**, CHARLES RIVER ANALYTICS.  
Awarded to an intern in each company division who shows significant promise as a software engineer.
- May 2014 **Academic Achievement Award**, DARTMOUTH COLLEGE LINGUISTICS DEPARTMENT.  
Awarded to a graduating student who has demonstrated considerable commitment to research in linguistics.

## Skills

- Programming languages Java (proficient), Python (proficient), R (intermediate),  $\text{\LaTeX}$ (intermediate), Javascript/d3 (beginner)
- Programming libraries sklearn, statsmodels, gensim, Weka, nltk, Beautiful Soup, Gephi, matplotlib, pandas
- Natural languages English (native), French (fluent), Japanese (beginner), Spanish (beginner), Māori (beginner)

## Research

- Aug 2015 – present **Graduate Research Assistant**, GEORGIA TECH COMPUTATIONAL LINGUISTICS LAB.
- Developing methods to describe and predict language change online.
  - Quantifying the influence of social and semantic niche on nonstandard word growth on Reddit.
  - Applying statistical models such as causal inference and survival analysis to lexical adoption.

- Dec 2013 – **Undergraduate Research Assistant**, DARTMOUTH COLLEGE LINGUISTICS DEPARTMENT.
- June 2014
- Designed regular expressions to extract non-standard sentence patterns (syntax) characteristic of African American English (AAE) in Twitter data.
  - Determined correlation between AAE and community-level demographics: e.g. lower percentage AAE in communities with higher median age.
  - Provided sociolinguistic evidence for diversity among AAE speakers.
- June 2013 – **Undergraduate Research Assistant**, UNIVERSITY OF HOUSTON.
- Aug 2013
- Implemented and tested methods for link prediction (using Weka) in a Chinese social network.
  - Developed edge-weighting method, based on structural balance theory, to handle weighted directed graphs.
  - Funded by the NSF as a Research Experience for Undergraduates.

## Work

- May 2016 – **PhD Intern**, Pacific Northwest National Laboratory.
- Aug 2016
- PhD intern through the National Security Internship Program.
  - Formulated and tested methods to predict word dynamics over time in social media data.
  - Implemented unsupervised clustering and smoothing in Python (sklearn) to group semantically related words.
  - Corroborated connection between distributional semantic meaning (measured with word vectors) and frequency dynamics.
- Aug 2015 – **Graduate Teaching Assistant**, Georgia Tech.
- Dec 2015
- Designed homework assignments that required implementation of AI algorithms in iPython notebooks.
  - Developed grading scripts for automated assignment scoring.
  - Prepared documentation for assignments and material to help transition the class to an online platform.
- June 2014 – **Software Engineer Intern**, Charles River Analytics.
- Aug 2015
- Contributed to agent-based social network generation model (in AnyLogic and Java MASON), in collaboration with two scientists.
  - Designed pipeline for social network synthesis and analysis, implementing metrics such as the network clustering coefficient and community modularity.
  - Extracted parameters from large-scale social media data for network generation model, such as distribution of languages across Twitter users.

## Coursework

- |                                |                                       |
|--------------------------------|---------------------------------------|
| - Social Computing             | - Natural Language Understanding      |
| - Design of Online Communities | - Statistical Methods                 |
| - Dialectology                 | - Information Visualization           |
| - Experimental Phonetics       | - Problem Solving in Computer Science |
| - Field Methods in Linguistics | - Discrete Mathematics                |

## Presentations and posters

- 2018 I. Stewart, Y. Pinter, J. Eisenstein. Si o no, que penses? Catalanian independence and linguistic identity on social media. NAACL 2018. New Orleans, LA.
- 2017 I. Stewart, S. Chancellor, M. De Choudhury, J. Eisenstein. #anorexia, #anarexia, #anarexyia: Characterizing Online Community Practices with Orthographic Variation. SocialNLP 2017. Boston, MA.
- 2017 I. Stewart, J. Eisenstein. Social and Distributional Predictors of the Success of Lexical Innovations in Online Writing. New Ways of Analyzing Variation (NWAV). Madison, WI.
- 2017 F. Hohman, S. Soni, I. Stewart, J. Stasko. A Viz of Ice and Fire: Exploring Entertainment Video Using Color and Dialogue. Workshop on Visualization for the Digital Humanities. Phoenix, AZ.

- 2017 I. Stewart, D. Arendt, E. Bell, S. Volkova. Measuring, Predicting and Visualizing Short-Term Change in Word Representation and Usage in VKontakte Social Network. International Conference on Web and Social Media (ICWSM). Montreal, Canada.
- 2017 I. Stewart, J. Eisenstein. #thighgap to #thyghgapp: Incrementation of Orthographic Variation on Instagram. Diversity and Variation in Language Conference (DiVar1). Atlanta, GA.
- 2015 E. Stickgold, B. Skarin, I. Stewart, C. Lofdahl. Extending generative models of large scale networks. 24th Conference on Behavior Representation in Modeling and Simulation (BRiMS). Washington, D.C.
- 2015 I. Stewart. We some young kings: Communities, age, and African American English online. 2015 Annual Meeting of the American Dialect Society. Portland, Oregon.
- 2014 I. Stewart. Now we stronger than ever: African American syntax on Twitter. 14th Conference of the European Chapter of the Association for Computational Linguistics. Gothenburg, Sweden.

## Reviewing

- 2018 ICWSM
- 2017 ICWSM, EMNLP, CONLL.
- 2016 EMNLP.

## Interests

- Music making
- Language learning
- Cookie baking
- Letter kerning