Ian Stewart

PhD student in social computing.

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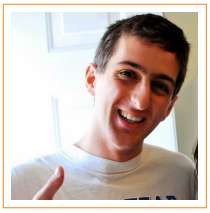

I study social phenomena in online communities, using language as a metric for variation and change. My work uses natural language processing to quantify written language variation.

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), 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 statistical models to study language change in online communities.
- Comparing the influence of social and linguistic factors on rate of language change.
- Prototyping a joint social and linguistic model for entity linking in social media.

Dec 2013 – June 2014 **Undergraduate Research Assistant**, Dartmouth College Linguistics Department.
- 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.
- Presented at 2014 meeting of the European Association for Computational Linguistics in Gothenburg, Sweden.
- Travel funded by the Neukom Institute.

June 2013 – Aug 2013 **Undergraduate Research Assistant**, University of Houston.
- 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 – Aug 2016 **PhD Intern**, Pacific Northwest National Laboratory.
- 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 – Dec 2015 **Graduate Teaching Assistant**, Georgia Tech.
- 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 – Aug 2015 **Software Engineer Intern**, Charles River Analytics.
- 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
- Design of Online Communities
- Dialectology
- Experimental Phonetics
- Field Methods in Linguistics
- Natural Language Understanding
- Statistical Methods
- Information Visualization
- Problem Solving in Computer Science
- Discrete Mathematics

Presentations and posters

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.

2012 J. Stanford and I. Stewart. The question of density: Multi-agent modeling of field data in Sui exogamous villages. New Ways of Analyzing Variation and Change in the Asia-Pacific Region (NWAV ASIA-PACIFIC 2). Tokyo, Japan.

Reviewing

2017 ICWSM, EMNLP, CONLL.

2016 EMNLP.

Interests

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