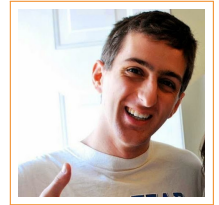


Ian Stewart

Graduate student in social computing.

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I study social phenomena in online environments, using language as a metric for variation and change. My work leverages sociolinguistics to make the most out of natural language processing.

Education

- 2015–present **Georgia Institute of Technology**, *Ph.D. in Human-Centered Computing*.
Specialization in social computing.
Research interests: natural language processing, Internet sociolinguistics, language variation and change over time, social network analysis.
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

- August 2015 **Great Promise Award**, CHARLES RIVER ANALYTICS.
Awarded to an intern in each company division who shows significant promise as a researcher. Determined by manager's review and a final presentation.
- May 2014 **Academic Achievement Award**, DARTMOUTH COLLEGE LINGUISTICS DEPARTMENT.
Awarded to a graduating student who has demonstrated considerable commitment to research in linguistics.
- May 2014 **English Teaching Assistantship**, FULBRIGHT U.S. STUDENT PROGRAM.
Highly competitive English teaching position in South Korea. Declined in favor of other employment.
- August 2012 **Presidential Scholar**, DARTMOUTH COLLEGE.
Awarded to exceptional undergraduate researchers to fund independent projects in their major, under a professor's advising.

Skills

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

Research

- Aug 2015 – **Graduate Research Assistant**, GEORGIA TECH COMPUTATIONAL LINGUISTICS LAB.
present
- Testing edit distance metrics, such as probabilistic finite state transduction, and their application to orthographic (spelling) variation.
 - Modeling the difference between individual and community-level language variation over time, e.g. if an individual's language diverges from the community's language.
 - Research conducted on an Instagram corpus using Python for analysis (logistic regression) and visualization (time series).
 - Publication in submission.
- 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, using a combination of words and part-of-speech tags.
 - Determined correlation between AAE and community-level demographics with linear and logistic regression: e.g. lower percentage AAE in communities with higher median age.
 - Provided sociolinguistic evidence for diversity among AAE speakers, i.e. AAE is not a monolithic dialect.
 - Presented at 2014 meeting of the European Association for Computational Linguistics in Gothenburg, Sweden.
 - Travel funded by the Neukom Institute.
- 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.
- Jan 2012 – **Undergraduate Research Assistant**, DARTMOUTH COLLEGE LINGUISTICS DEPARTMENT.
Aug 2012
- Extended and enhanced computational model of interaction-based language change with agent-based modeling (in Java Swarm).
 - Simulated dialect contact situation to predict change in a language in rural China (Sui), using field data as ground-truth.
 - Developed evidence in favor of peer-based, as opposed to family-based, dialect acquisition.
 - Presented results at NWAV-PACIFIC 2012 in Tachikawa, Japan.
 - Funded by a Dartmouth Presidential Scholarship.

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 word2vec) and frequency dynamics.
- Aug 2015 – **Graduate Teaching Assistant**, Georgia Tech.
Dec 2015
- Designed homework assignments that required implementation of AI algorithms in iPython notebooks.
 - Prepared documentation for assignments 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.
- Sep 2013 – **Linguistics Tutor**, Dartmouth College.
Mar 2014
- Assisted students in introductory linguistics and history of English.
 - Reviewed practice problems to reinforce understanding of course material, such as vowel shifts.

Coursework

- Social Computing
- Design of Online Communities
- Dialectology
- Introduction to Sociolinguistics
- Field Methods in Linguistics
- Natural Language Understanding
- Statistical Methods
- Machine Readings
- Problem Solving in Computer Science
- Discrete Mathematics

Presentations and posters

- 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.
- 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).

Interests

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