

HANG JIANG

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OBJECTIVE I am actively applying for doctoral programs in natural language processing, computational cognitive science, and computational social science for Fall 2020.

EDUCATION **Stanford University**, Palo Alto, CA Sept. 2018 - Exp. Jun. 2020
M.S. in Symbolic Systems, *focus on AI and Cognitive Science* GPA: 4.03/4.00
Advisor: Michael C. Frank

Emory University, Atlanta, GA Aug. 2014 - May. 2018
B.S. in Computer Science and B.A. in Linguistics, *Summa Cum Laude*
Advisor: Jinho D. Choi
Thesis: Automatic Personality Prediction with Attention-based Neural Networks

RESEARCH INTEREST

- Natural Language Processing, Computational Linguistics
- Machine Learning, Deep Learning, Decision Making Under Uncertainty
- Computational Cognitive Science, Computational Social Science
- Language Variation and Change, Social Reasoning, Language Acquisition
- AI for Social Good (Education, Mental Health, and Sustainable Development)

CURRENT PROJECTS

- Improving pragmatic inference of *some* with Rational Speech Act Framework and BERT (Collaborators: Reuben Cohn-Gordon, Judith Degen)
- Improving Radiology Report Summarization with Pre-trained Models (Collaborators: Yuhao Zhang, Christopher Manning)

PUBLICATIONS Zhou, Sharon; Jiequan Zhang; **Hang Jiang**; Torbjorn Lundh; and Andrew Ng. 2020. (* = Equal Contribution) Mobius Data Augmentation. *International Conference on Machine Learning (ICML 2020)*. Vienna, Austria. **Under Review**

Jiang, Hang; Michael C. Frank; Vivek Kulkarni; and Abdellah Fourtassi. 2020. Exploring Patterns of Stability and Change in Caregivers' Word Usage Across Early Childhood. *Proceedings of the 42st Annual Conference of the Cognitive Science Society*. Toronto, Canada. **Under Review** [[paper](#), [data](#)]

Jiang, Hang; Xianzhe Zhang; and Jinho D. Choi. 2019. Automatic Text-based Personality Recognition on Monologues and Multiparty Dialogues Using Attentive Networks and Contextual Embeddings. To appear in *Proceedings of the 34th AAAI Conference on Artificial Intelligence: Student Abstract and Poster Program, of AAAI:SAP'19*. New York, USA. **Spotlight Presentation (20/287)**. [[paper](#), [github](#), [data](#)]

Jiang, Hang*; Haoshen Hong*; Yuxing Chen*; and Vivek Kulkarni. 2019. Dialect-Gram: Detecting Dialectal Variation at Multiple Geographic Resolutions. *Proceedings of the Society for Computation in Linguistics:: Vol. 3, Article 13*. New Orleans: Linguistic Society of America. **Oral Presentation**. [[paper](#), [github](#), [data](#)]

Jiang, Hang; and Jinho D. Choi. 2018. Automatic Personality Prediction with Attention-based Neural Networks. *Electronic Theses and Dissertations*, Emory University, Atlanta, GA. **Highest Honors**. [[paper](#), [github](#)]

TALKS & PRESENTATIONS

Jiang, Hang; and Roberto Franzosi. 2018. Shape of Stories. *Emory SIAM Student Chapter Event "Bridging the Gap: Math across Emory"*, Atlanta, GA. [[slides](#)]

Jiang, Hang; Doris Zhou; Alec Wolyniec; and Roberto Franzosi. 2017. Automatic Extraction of Actors and Actions from News Stories of Lynching. *Mini-Conference: Lynching in Historical Perspective*, Atlanta, GA. [[slides](#)]

Zhou, Doris; **Hang Jiang**; and Roberto Franzosi. 2017. He, She, They... Who Are They? Automatic and Semi-Automatic Anaphora Resolution. *Mini-Conference: Lynching in Historical Perspective*, Atlanta, GA. [[slides](#)]

Xiao, Catherine; **Hang Jiang**; and Jinho D. Choi. 2017. Seq2seq Model to Tokenize the Chinese Language. *Emory Undergraduate Research Symposium in Fall*, Atlanta, GA. [[poster](#)]

Jiang, Hang; and Jinho D. Choi. 2016. Chinese Grammar vs English Grammar in Universal Dependency. *Emory Undergraduate Research Symposium in Spring*, Atlanta, GA. [[poster](#)]

INDUSTRY EXPERIENCE

Apple Inc., Cupertino, California Jun. 2019 - Sept. 2019
Machine Learning Applied to Natural Language Processing Intern

Supervisors: Bing Zhao, Vivek Kumar Rangarajan Sridhar

- Worked on sentence embeddings, applied in text summarization and smart reply
- Contributed to internal NLP framework, supporting Apple Core ML

Educational Testing Service (ETS), Princeton, NJ Jun. 2018 - Aug. 2018
Natural Language Processing Intern

Supervisors: Martin Chodorow, Nitin Madnani, Aoife Cahill

- Built a new automatic *preposition error detection* system for *E-rater*
- Improved recall by **10%** to help ETS in grading GRE and TOEFL essays

RESEARCH EXPERIENCE

Stanford Language and Cognition Lab Jan. 2019 - Exp. Jun. 2020
Research Assistant Supervisors: Abdellah Fourtassi, Michael C. Frank

- Submitted one first-authored paper, *Exploring Patterns of Stability and Change in Caregivers' Word Usage Across Early Childhood*, to Conference of the Cognitive Science Society 2020

Stanford Artificial Intelligence Laboratory Mar. 2019 - Exp. Jun. 2020
Research Assistant

- Published *DialectGram: Automatic Detection of Dialectal Changes with Multi-geographic Resolution Analysis* with Vivek Kulkarni (Stanford NLP Group) at Society for Computation in Linguistics (SCiL 2020, ACL Proceedings)
- Improved pragmatic inference of *some* with BERT, Rational Speech Act (RSA), and data augmentation with Reuben Cohn-Gordon, Christopher Potts, Judith Degen (Submitting to EMNLP 2020)
- Design Mobius data augmentation technique with Sharon Zhou, Andrew Ng (Stanford ML Group) and submitted one paper to ICML 2020

- Working on designing pre-trained models to improve radiology report summarization with Yuhao Zhang, Christopher Manning (Stanford NLP Group)

Honors Thesis Program, Emory NLP Lab

Sept. 2017 - May. 2018

Research Assistant Supervisor: Jinho D. Choi

Committee Members: Marjorie Pak, Roberto Franzosi, Shun Yan Cheung

- Constructed FriendsPersona, the first dialogue dataset for automatic personality recognition from Friends TV show transcripts with Amazon's Mechanical Turk
- Improved state-of-art performance on Essays dataset with attentive networks and contextual embeddings and established a strong benchmark on FriendsPersona
- Won *highest honors* and a paper accepted to AAAI-20 Student Abstract and Poster Program

Emory PC-ACE Lab

Jan. 2017 - May. 2018

Research Assistant Supervisor: Roberto Franzosi

- Led the development of Emory Program for Computer-Assisted Coding of Events (PC-ACE) key components including automatic subject-verb-object (SVO) extraction, sentiment analysis, co-reference resolution, document clustering, and data visualization for narrative analysis (*Java, Python*)
- Assisted students in *LING 446W: Big/Small Data and Visualization* to use PC-ACE software for research in computational social science (*NLTK, Scikit-Learn, Scipy, Stanford CoreNLP*)

Carnegie Mellon University

Jun. 2017 - Aug. 2017

Summer Research Intern Supervisor: Brian MacWhinney

- Built and optimized automatic speech recognition (ASR) models based on *Bidirectional LSTM* to recognize speech from Aphasia patients
- Developed an intelligent English tutor *Funetics* in *Nodejs, Express, MongoDB* and *jQuery* to grade speech and provide customized feedback

Georgia Institute of Technology

Mar. 2017 - May. 2017

Research Assistant Supervisor: Annamaria Conti

- Implemented *Latent Semantic Analysis (LSA)* and *Latent Dirichlet Allocation (LDA)* to find patent-paper pairs on a large biomedical dataset
- Identified 688 high-quality patent-paper pairs

Summer Research Program, Emory NLP Lab

Jun. 2016 - Sept. 2016

Summer Research Fellow Supervisor: Jinho D. Choi

- Built a Seq2Seq-based *Chinese Word Segmentation* model on Chinese TreeBank 7.0 in *Tensorflow*; Presented the work at Emory Fall Symposium

PROJECTS

- Ensemble BERT with Data Augmentation and Linguistic Knowledge on SQuAD 2.0, CS224N Deep Learning for Natural Language Processing, 2019, Christopher Manning. **Ranked #1 on the leaderboard and won the best poster award for the default project division (1 out of 98 teams)** [report, poster, twitter]
- Improving Sentiment Analysis with Data Augmentation, CS229A Applied Machine Learning, Younes Bensouda Mourri, Andrew Ng, 2019, [report, poster]
- JoyBot: Your Personal Mood Tracker, Apple iContest for Interns. [demo]

COURSES

Stanford University

- **CS:** Natural Language Processing in Deep Learning (Chris Manning), Information Retrieval (Chris Manning), Natural Language Understanding (Chris Potts), Programming for Linguists (Chris Potts), From Languages to Information (Dan Jurafsky), Applied Machine Learning (Andrew Ng), Decision Making Under Uncertainty (Mykel Kochenderfer), Data Management and Data Systems (Shiva Shivakumar), Object Oriented System Design (Patrick Young), Programming Abstractions in C++ (Marty Stepp)

Emory University

- **CS, Math:** Object-Oriented Programming in Java, Data Structure and Algorithms, Database Systems, Computational Linguistics, Data Mining, System Programming, Theory of Computing, Computer Networks, Discrete Structures, Linear Algebra, Optimization Theory, Statistics Inference, Foundations of Math, Big/Small Data & Visualization
- **Linguistics, Psychology, Philosophy:** Language Mind and Society, Semantics and Pragmatics, Phonetics and Phonology, Syntax and Morphology, Brain and Language, History of the American Languages, Foundations of Linguistics, Cognition, Logic, Psychology I & II

EXTRA-CURRICULAR ACTIVITIES

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| Activity Manager, Chinese Entrepreneurship Organization (CEO) | 2018-2020 |
| Member, Symbolic Systems Society at Stanford | 2018-2020 |
| Member, Association of Chinese Students and Scholars at Stanford | 2018-2020 |
| Vice President in Public Management, Emory Linguistics Circle | 2017 |
| Campus Leader, Emory Bread House | 2016-2017 |
| Member, Structured Independent Language Study (SILS) Program | 2016-2017 |
| Vice President in Management, Sino-Emory Newsletter | 2017 |
| Editor, Sino-Emory Newsletter | 2016 |
| Member, Artisan Guild at Emory | 2016 |

HONORS

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| Student Scholar , AAI-20 Student Scholarship Program | 2019 |
| Grants for Education And Research (GEAR) , Stanford Research Funding | 2019 |
| Best Poster , CS224n NLP with Deep Learning Final Project (Chris Manning) | 2019 |
| Highest Honors , Honors Thesis Program in Linguistics at Emory University | 2018 |
| Phi Sigma Iota Honor Society , International Foreign Language Studies | 2017 |
| Dean List , Emory College of Arts & Sciences | 2017 |
| Research Fellowship , Scholarly Inquiry and Research at Emory Program | 2016 |
| Research Fellowship , Scholarly Inquiry and Research at Emory Program | 2015 |

TEACHING

Teaching Assistant:

CS224n: NLP with Deep Learning, Stanford University (Winter 2020)
Instructor: Christopher Manning
CS 145 Data Management and Data Systems, Stanford University (Autumn 2019)
Instructor: Shiva Shivakumar

SKILLS

Programming Languages:

Python, C/C++, Java, SQL, R, Javascript, Swift, HTML/CSS, M68000 Assembly

Frameworks & Tools:

PyTorch, Tensorflow, Android, iOS, JQuery, Git, LaTeX

Natural Languages:

Mandarin Chinese (native), English (fluent), Portuguese (intermediate), Spanish (intermediate), American Sign Language (beginner), Korean (beginner), Vietnamese

(beginner)

Certificates:

Natural Language Processing Nanodegree (Udacity), Deep Learning Specialization
(Coursera)