

# 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

- Modeling Semantic Development with Diachronic Word Embeddings (Collaborators: Vivek Kulkarni, Abdellah Fourtassi, Michael C. Frank)
- Improving pragmatic inference of *some* with Rational Speech Act Framework and BERT (Collaborators: Reuben Cohn-Gordon, Judith Degen)
- Semi-supervised Data Augmentation with Mobius Transformation (Collaborators: Sharon Zhou, Torbjörn Lundh, Andrew Ng)
- Improving Radiology Report Summarization with Pre-trained Models (Collaborators: Yuhao Zhang, Christopher Manning)

## PUBLICATIONS (\* = Equal Contribution)

**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. **Strong Accept.** [[paper](#), [github](#), [data](#)]

**Jiang, Hang\***; Haoshen Hong\*; Yuxing Chen\*; and Vivek Kulkarni. 2019. DialectGram: Detecting Dialectal Variation at Multiple Geographic Resolutions. To appear in *Proceedings of the Society for Computation in Linguistics. 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

- Applied both semantic networks and dynamic word embeddings to study semantic development during child language learning on CHILDES database
- Working on a paper towards *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 (Ready for submission at EMNLP)
- Working on semi-supervised data augmentation using Mobius transformation with Sharon Zhou, Torbjörn Lundh, Andrew Ng (Stanford ML Group)
- 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

<b>EXTRA-CURRICULAR ACTIVITIES</b>	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

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

<b>TEACHING</b>	<b>Teaching Assistant:</b>	
	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	

<b>SKILLS</b>	<b>Programming Languages:</b>	
	Python, C/C++, Java, SQL, R, Javascript, Swift, HTML/CSS, M68000 Assembly	
	<b>Frameworks &amp; Tools:</b>	
	PyTorch, Tensorflow, Android, iOS, JQuery, Git, LaTeX	
	<b>Natural Languages:</b>	
	Mandarin Chinese (native), English (fluent), Portuguese (intermediate), Spanish (intermediate), American Sign Language (beginner), Korean (beginner), Vietnamese (beginner)	
	<b>Certificates:</b>	
	Natural Language Processing Nanodegree (Udacity), Deep Learning Specialization (Coursera)	