

JONATHAN P. CHANG

PHD STUDENT, CORNELL UNIVERSITY

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Research Goals

My research focus is on applying techniques from natural language processing and artificial intelligence to develop automated understanding of social and emotional factors in human interaction.

Education

Cornell University

PhD in Computer Science

2017-Present

Advisor: Cristian Danescu-Niculescu-Mizil
Expected graduation: May 2023

Harvey Mudd College

Bachelor of Computer Science

2013-2017

Dean's List: All eligible semesters
Graduated with High Distinction

Honors

"Class of '94" Computer Science Department Award

Harvey Mudd College

2017

Awarded to top 3 graduating computer science undergraduates on the basis of coursework, research, and service.

Clinic Award

Harvey Mudd College

2017

Awarded for outstanding senior capstone project.

Departmental Honors in Humanities, Social Sciences, and the Arts

Harvey Mudd College

2017

Awarded for academic performance in courses in humanities, social sciences, and the arts.

Publications

"ConvoKit: A Toolkit for the Analysis of Conversations". **Jonathan P. Chang**, Caleb Chiam, Liye Fu, Andrew Wang, Justine Zhang and Cristian Danescu-Niculescu-Mizil. Proceedings of SIGDIAL 2020 (System Demos).

"Don't Let Me Be Misunderstood: Comparing Intentions and Perceptions in Online Discussions". **Jonathan P. Chang**, Justin Cheng, and Cristian Danescu-Niculescu-Mizil. Proceedings of WWW 2020.

"Trouble on the Horizon: Forecasting the Derailment of Online Conversations As They Develop". **Jonathan P. Chang** and Cristian Danescu-Niculescu-Mizil. Proceedings of EMNLP 2019.

"Trajectories of Blocked Community Members: Redemption, Recidivism and Departure". **Jonathan P. Chang** and Cristian Danescu-Niculescu-Mizil. Proceedings of The Web Conference (WWW) 2019.

"Asking the Right Question: Inferring Advice-seeking Intentions From Personal Narratives". Liye Fu, **Jonathan P. Chang**, and Cristian Danescu-Niculescu-Mizil. Proceedings of NAACL 2019.

"Conversations Gone Awry: Detecting Early Signs of Conversational Failure". Justine Zhang, **Jonathan P. Chang**, Cristian Danescu-Niculescu-Mizil, Lucas Dixon, Yiqing Hua, Nithum Thain, Dario Taraborelli. Proceedings of ACL 2018.

"Learning Representations of Emotional Speech with Deep Convolutional Generative Adversarial Networks". **Jonathan Chang** and Stefan Scherer. IEEE ICASSP 2017.

Invited Talks

Wikimedia Research Showcase

“Trajectories of Blocked Community Members: Redemption, Recidivism & Departure” **June 2019**

Wikimedia Research Showcase

“Conversations Gone Awry: Detecting Early Signs of Conversational Failure” **June 2018**

Other Invited Events

Microsoft Research

“Breakthroughs in AI” workshop **September 2019**

Media Coverage

MIT Technology Review

“Machine learning could stop an online war of words before it starts” **2018**

The Verge

“Machine learning is helping computers spot arguments online before they happen” **2018**

Fast Company

Scientists are building a detector for conversations likely to go bad” **2018**

Cornell Chronicle

“Predicting when online conversations turn toxic” (featured on Cornell homepage) **2018**

Research

Cornell University

Graduate Research Assistant **2017-Present**

I work with Professor Cristian Danescu-Niculescu-Mizil on applying natural language processing and machine learning to problems involving online interaction and conversation.

University of Southern California

Summer Undergraduate Research Experience **Summer 2016**

Designed and evaluated a neural network for detecting emotional valence in human speech.

Teaching

Cornell University

Teaching Assistant **2017-2018**

Teaching assistant for CS 4700, introduction to Artificial Intelligence.

Harvey Mudd College

Peer Academic Liaison **2015-2017**

Connected Harvey Mudd students to academic resources and provided support, especially for first-year students.

Harvey Mudd College

Computer Science Grader/Tutor **2014-2017**

Graded homework assignments and provided homework assistance for students in Harvey Mudd computer science courses. Served as head grader/tutor for CS 70 (Data Structures and Program Development) in Fall 2015.

Industry

Facebook Inc.

Core Data Science Intern

Summer 2019

Worked with CDS researcher Justin Cheng on understanding the role of intentions and perceived intentions in public conversations

Proofpoint Inc.

Software Engineering Intern

Summer 2017

Developed a machine learning pipeline for quick filtering of suspicious URLs in emails.

Intentional Software Corporation

Intern Software Analyst and Developer

Summer 2015

Leveraged Intentional's application platform to create a unique color editor tool allowing users to manipulate 3d representations of color space.

Smith Micro Software

Software Engineering Intern

Summer 2014

Implemented a content browser for Poser Pro (Smith Micro's 3d animation tool) using JavaScript and the Dojo toolkit. Added texture processing and multi-animation support to Poser Pro's FBX file format exporter using C++. Created a demo game using the Unity engine to demonstrate Poser Pro's Unity support.

Software, Datasets, and Resources

Cornell Conversational Analysis Toolkit (ConvoKit)

Developer and Design Lead

An open-source Python NLP package implementing multiple conversational analysis tools. I led a redesign effort to improve user friendliness and flexibility for the 2.0 release, and continue to be an active contributor. Can be found at convokit.cornell.edu

Conversations Gone Awry Corpus

Creator and Maintainer

A dataset of over 4,000 Wikipedia talk page conversations, with crowdsourced annotations for personal attacks, distributed as part of ConvoKit.

VirtualVEX Simulator Project

Creator and Head Developer

Developed VirtualVEX, an open-source, customizable robotics simulator program using the Unity engine. Can be found at sites.google.com/site/virtualvex

Skills

Python	SpaCy	NLTK
scikit-learn	Gensim	Numpy / Scipy
Pandas	C/C++	C#
Java	JavaScript	PHP
Haskell	HTML / CSS	OCaml
Perl	Prolog	Racket
Ruby	SQL	

Relevant Coursework

Artificial Intelligence	Natural Language Processing	Computer Vision
Algorithms	Computability & Logic	Probability & Statistics
Image Processing	Autonomous Vehicles	NLP & Social Interaction
Advanced Systems		