# Zhichao Hu

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## RESEARCH PROJECTS

Since 6/2012 — *Gestural and Linguistic Expressivity and Adaptativity in Dialogs*
This project focuses on implementing gestural and linguistic adaptation in dialogs with respect to personality, and testing human perceptions of such adaptation. Previous experiments of this project have already shown that subjects perceive linguistic and gestural adaptation positively. In future work, linguistic adaptation will be measured from two dialog corpora to serve as foundations of adaptation models.

2012 - 2016 — *Learning Contingent Events from Film Scenes*
A pair of contingent events is two events that are likely to occur together, for example, *unlocks door* and *door opens*. In this project, a system is implemented to produce contingent event pairs given raw text input. For evaluation, instead of using the ranking method that previous research has been using, this project gathered perceptual feedbacks from real people.

Spring 2015 — *Learning Event Polarity*
Analysis of the sentiment of an event has been largely based on sentiment word lexicons. While it is common knowledge that "going to a party" is generally a positive event and "getting a splinter" is a negative one, conventional sentiment analysis tools can hardly tell them apart. This project focuses on finding patterns for event polarity using a labeled everyday event dataset.

Summer 2015 — *Sense Anaphora Resolution*
Anaphora is the use of an expression the interpretation of which depends upon another expression in context. In particular, this project resolves anaphora that shares the sense with its antecedent, but doesn't refer to it. E.g. anaphor "one" and antecedent "red car" in "John has a red car, Mary has one too." This project focuses on exploring features for a machine learning approach of anaphor detection and antecedent resolution.

2013 - 2015 — *A Formal Framework for Visualizing and Exploring Natural Language Text*
This project focuses on designing and implementing a framework for information extraction. The framework consists of a concise, intuitive and comprehensive abstraction of textual data, leveraging linguistic information such as dependency structures. An interactive visualization system is built on top of the framework to help non-expert users explore large amount of text, produce high-quality extractors on real tasks, and reduce Information Extraction development cycle from hours or even days to mere minutes.

Fall 2011 — *Data Mining from a World of Warcraft Database for Personality Recognition*
The World of Warcraft (WoW) Database contains information of both virtual characters and corresponding actual players. This project extracted features from the raw database, fitted the problem into appropriate models and evaluated results of different machine learning methods. Accuracy as high as 68% is achieved in predicting personality.

# EMPLOYMENT HISTORY

Summer 2017     *Research Intern in Intel Labs*
Summer 2015     *Software Engineering Intern in Google*
Summer 2013     *Research Intern in IBM Almaden Research Center*
2012 - 2017     *Teaching Assistant for*

- *CMPS 201 Analysis of Algorithms (Graduate Level)*
- *CMPS 143 Introduction to Natural Language Processing*
- *CMPS 101 Algorithms and Abstract Data Types*
- *CMPS 17 Social Networks*
- *CMPS 12A Introduction to Programming (Accelerated) & CMPS 12L Computer Programming Lab*
- *CMPS 11 Intermediate Programming*
- *CMPS 10 Introduction to Computer Science*
- *CMPS 5J Introduction to Programming in Java*
- *AMS 5 Statics*

2011-present     *PhD Graduate Student Researcher, University of California, Santa Cruz*

# PUBLICATION

**Refereed Conference Papers**

1. **Zhichao Hu** and Marilyn A. Walker. "Inferring Narrative Causality between Event Pairs in Films," To appear in *SIGdial Meeting on Discourse and Dialogue (SIGDIAL 2017)*, Saarbrücken, Germany, August 2017.

2. **Zhichao Hu** and Marilyn A. Walker. "Measuring Personality Adaptation in Task-Oriented Dialogs," To appear in *WiNLP (Women and Underrepresented Minorities in NLP) Workshop*, Vancouver, Canada, July 2017.

3. **Zhichao Hu**, Elahe Rahimtoroghi and Marilyn A. Walker. "Inference of Fine-Grained Event Causality from Blogs and Films," To appear in *Workshop on Events and Stories in the News*, Vancouver, Canada, July 2017.

4. Marta Recasens, **Zhichao Hu**, and Olivia Rhinehart. "Sense Anaphoric Pronouns: Am I One?," *Workshop on Coreference Resolution Beyond OntoNotes (CORBON)*, San Diego, CA, USA, June 2016.

5. **Zhichao Hu**, Michelle Dick, Chung-Ning Chang, Michael Neff, Jean E. Fox Tree, and Marilyn A. Walker. "A Corpus of Gesture-Annotated Dialogues for Monologue-to-Dialogue Generation from Personal Narratives," *Language Resources and Evaluation Conference (LREC)*, Portorož, Slovenia, May 2016.

6. **Zhichao Hu**, Marilyn A. Walker, Michael Neff and Jean E. Fox Tree. "Storytelling Agents with Personality and Adaptivity," *Intelligent Virtual Agents: 15th International Conference (IVA 2015)*, Delft, Netherlands, Aug. 2015.

7. **Zhichao Hu**, Gabrielle Halberg, Carolynn R. Jimenez and Marilyn A. Walker. "Entrainment in Pedestrian Direction Giving: How many kinds of entrainment?" *Workshop on Spoken Dialog Systems* (IWSDS '14), Napa, CA, USA, Jan. 2014.

8. Marilyn A. Walker, Jennifer Sawyer, Carolynn Jimenez, Elena Rishes, Grace I. Lin, **Zhichao Hu**, Jane Pinckard and Noah Wardip-Fruin. "Using Expressive Language Generation to Increase Authorial Leverage," *The Intelligent Narrative Technologies (INT) Workshop*, Boston, MA, USA, Oct. 2013.

9. **Zhichao Hu**, Elahe Rahimtoroghi, Larissa Munishkina, Reid Swanson and Marilyn A. Walker. "Unsupervised Induction of Contingent Event Pairs from Film Scenes," *Conference on Empirical Methods in Natural Language Processing* (EMNLP '13), Seattle, WA, USA, Oct. 2013.

## FELLOWSHIP & AWARDS

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| 9/2015 | Travel Grant for *Grace Hopper Celebration of Women in Computing* from Google |
| 2/2017 | Finalist in UCSC Grad Slam 2017 |

## EDUCATION

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| 2011-present | Ph.D. student | Department of Computer Science, University of California, Santa Cruz |
| 2013 | M.S. | Department of Computer Science, University of California, Santa Cruz |
| 2007 | B.S. | Department of Computer Science, Jilin University, China |
| | B.A. (minor) | Japanese Program, Department of Foreign Languages, Jilin University |

## COMPUTER SKILLS

- Software: Eclipse, Weka, Visual Studio

- Languages: Java, C++, Python, C, JavaScript, Haskell, Assembly, Objective-C, Matlab, R

## RELEVANT COURSEWORK

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| Machine Learning | Seminar on Social Media |
| Data Mining | Computational Models and Discourse Relations |
| Classic Bayes Inference | Analysis Algorithms |
| Functional Programming Languages | Seminar on Spontaneous Speech |

## LANGUAGES

English (near native), Chinese (native), Japanese (intermediate)