

Zhou Yu

Email: zhouyu@cs.cmu.edu

Cell: 412-944-4815

Add: 1914 Murray Ave #32
Pittsburg, PA, USA (15217)

Website: <http://www.cs.cmu.edu/~zhouyu>

Education

July, 2017 - Now	Assistant Professor in Computer Science Department, University of California, Davis
Sept. 2011 – May. 2017	Ph.D. in School of Computer Science, Carnegie Mellon University
Sept. 2007 – June. 2011	Honors Program ¹ , Chu Kochen Honors College, Zhejiang University Dual Degree: Bachelors in Computer Science and Linguistics

Research Interests

Speech and Natural Language Processing

[\[IJCAI 2017\]](#) [\[SIGDIAL 2016a\]](#) [\[SIGDIAL 2016b\]](#) [\[IVA 2016b\]](#) [\[LREC 2016a\]](#) [\[LREC 2016b\]](#) [\[IWSDS 2016a\]](#)
[\[IWSDS 2016b\]](#) [\[SIGIDAL 2015\]](#) [\[AAAI Symposium 2015\]](#)

Human-Computer Interaction

[\[IVA 2016a\]](#) [\[HRI 2016\]](#) [\[SIGIDAL 2015\]](#)

Applied Machine Learning

[\[ASRU 2015\]](#) [\[ICIMCS 2010\]](#)

Computational Social Science

[\[SIGDIAL 2013\]](#) [\[SEMDIAL 2013\]](#)

Publications

Book Chapters

Zhou Yu, Vikram Ramanarayanan, Robert Mundkowsky, Patrick Lange, Alan Black, Alexei Ivanov, David Suendermann-Oeft, Multimodal HALEF: An Open-Source Modular Web-Based Multimodal Dialog Framework, in: Dialogues with Social Robots, Springer, 2017 to be published.

Vikram Ramanarayanan, David Suendermann-Oeft, Patrick Lange, Robert Mundkowsky, Alexei V. Ivanov, **Zhou Yu**, Yao Qian and Keelan Evanini (2016, in press), Assembling the jigsaw: How multiple open standards are synergistically combined in the HALEF multimodal dialog system, in: Multimodal Interaction with W3C Standards: Towards Natural User Interfaces to Everything, D. A. Dahl, Ed., ed New York: Springer, 2016.

Peer-reviewed Conferences

2017

¹ Honors Program (mixed class) is for top 5% engineering students in Zhejiang University

Zhou Yu, Alan W Black and Alexander I. Rudnicky, Learning Conversational Systems that Interleave Task and Non-Task Content, IJCAI 2017

2016

Zhou Yu, Ziyu Xu, Alan W Black and Alexander I. Rudnicky, Strategy and Policy Learning for Non-Task-Oriented Conversational Systems, ACM SIG Meetings on Discourse and Dialogue (SIGDIAL 2016).

Zhou Yu, Leah Nicolich-Henkin, Alan W Black and Alexander I. Rudnicky, A Wizard-of-Oz Study on A Non-Task-Oriented Dialog Systems that Reacts to User Engagement, ACM SIG Meetings on Discourse and Dialogue (SIGDIAL 2016).

Zhou Yu, Xinrui He, Alan W Black and Alexander I. Rudnicky, User Engagement Modeling in Virtual Agents Under Different Cultural Contexts, International Conference on Intelligent Virtual Agents (IVA 2016).

Luis F. D'Haro, Bayan Abu Shawar and **Zhou Yu**, 2nd WOCHAT Shared Task Data Collection and Annotation, International Conference on Intelligent Virtual Agents (IVA 2016).

Sean Andrist, Dan Bohus, **Zhou Yu** and Eric Horvitz, Are You Messing with Me? : Querying about the Sincerity of Interactions in the Open World, International Conference on Human-Robot Interaction (HRI 2016).

Zhou Yu, Ziyu Xu, Alan W Black and Alexander I. Rudnicky, Chatbot evaluation and database expansion via crowdsourcing, In Proceedings of the RE-WOCHAT workshop in Language Resources and Evaluation Conference (LREC 2016).

Luis F. D'Haro, Bayan Abu Shawar and **Zhou Yu**, 1st WOCHAT Shared Task Data Collection and Annotation, Language Resources and Evaluation Conference (LREC 2016).

Zhou Yu, Vikram Ramanarayanan, Robert Mundkowsky, Patrick Lange, Alan Black, Alexei Ivanov, David Suendermann-Oeft, Multimodal HALEF: An Open-Source Modular Web-Based Multimodal Dialog Framework, International Workshop for Spoken Dialog Systems (IWSDS 2016).

Alexei Ivanov, Patrick Lange, David Suendermann-Oeft, Vikram Ramanarayanan, Yao Qian, **Zhou Yu** and Jidong Tao, Speed vs. Accuracy: Designing an Optimal ASR System for Spontaneous Non-Native Speech in a Real-Time Application, International Workshop for Spoken Dialog Systems (IWSDS 2016).

2015

Zhou Yu, Dan Bohus and Eric Horvitz, Incremental Coordination: Attention-Centric Speech Production in a Physically Situated Conversational Agent, SIG Meetings on Discourse and Dialogue (SIGDIAL 2015).

Zhou Yu, Vikram Ramanarayanan, David Suendermann-Oeft, Xinhao Wang, Klaus Zechner, Lei Chen, Jidong Tao and Yao Qian, Using Bidirectional LSTM Recurrent Neural Networks to Learn High-Level Abstractions of Sequential Features for Automated Scoring of Non-Native Spontaneous Speech, IEEE Automatic Speech Recognition and Understand Workshop (ASRU 2015).

Zhou Yu, Alexandros Papangelis and Alexander I. Rudnicky, TickTock: Engagement Awareness in a non-Goal-Oriented Multimodal Dialogue System, AAAI Spring Symposium on Turn-taking and Coordination in Human-Machine Interaction (AAAI Symposium 2015).

2013

Zhou Yu, David Gerritsen, Amy Ogan, Alan W Black and Justine Cassell, Automatic Prediction of Friendship via Multi-model Dyadic Features, SIG Mettings on Discourse and Dialogue (SIGDIAL 2013).

Zhou Yu, Stefan Scherer, David Devault, Jonathan Gratch, Giota Stratou, Louis-Philippe Morency and Justine Cassell, Multimodal Prediction of Psychological Disorder: Learning Verbal and Nonverbal Commonality in Adjacency Pairs, Workshop on Semantics and Pragmatics of Dialog (SEMDIAL 2013).

2010

Zhou Yu, Deng Cai and Xiaofei He, Error-correcting Output Hashing in Fast Similar Search, in The Second International Conference on Internet Multimedia Computing and Service, International Conferences on Internet Multimedeida Computing and Service (ICIMCS 2010, **best paper award**).

Workshops, Reports and Demos

Zhou Yu, Ziyu Xu, Alan W Black and Alexander I. Rudnicky, A Chatbot for Film Promotion, in Proceedings of IEEE SLT 2016, Demo, San Diego, California, Dec. 13-16

Vikram Ramanarayanan, Patrick Lange, David Pautler, Zhou Yu and David Suendermann-Oeft, Interview With An Avatar: A Real-time Engagement Tracking-enabled Cloud-based Multimodal Dialog System For Learning And Assessment, in Proceedings of IEEE SLT 2016, Demo, San Diego, California, Dec. 13-16

Vikram Ramanarayanan, David Suendermann-Oeft, Patrick Lange, Alexei V. Ivanov, Keelan Evanini, **Zhou Yu**, Eugene Tsuprun, and Yao Qian (2016), Bootstrapping Development of a Cloud-Based Spoken Dialog System in the Educational Domain From Scratch Using Crowdsourced Data, in: *ETS Research Report Series*, Wiley. doi: 10.1002/ets2.12105.

Zhou Yu, Noisy Multimodal Sequence Data Modeling for Interactive Conversation Modeling, in Proceeding of Advances in Neural Information Processing Systems (NIPS), Women in Machine Learning Workshop 2015, Montreal, Canada, Dec. 7-12

Zhou Yu, Attention and Engagement Aware Multimodal Conversational Systems, in Proceeding of ACM International Conference on Multimodal Interaction (ICMI) Doctoral Consortium 2015, Seattle, Washington, Nov. 9-13

Zhou Yu, Multimodal Interactive System Design, Implement and Deployment, in Proceedings of the 11th Young Researchers' Roundtable on Spoken Dialog Systems (YRRSDS), 2015, Prague, Czech Republic, Aug. 31- Sep.1

Zhou Yu, Engaging Social Chatbot, in Proceedings of the 10th Young Researchers' Roundtable on Spoken Dialog Systems (YRRSDS), 2014, Philadelphia, Pennsylvania, June 16-17.

Patents Filed

Computer-Implemented Systems and Methods for a Crowd Source-Bootstrapped Spoken Dialog System

A bootstrapping method in developing real-world deployable spoken dialog systems

Processor-Implemented Systems and Methods for Determining Sound Quality

A deep learning algorithm and end-to-end system for automatic non-native English proficiency scoring

Honors and Awards

Jan. 2017	Oral presentation at Amazon PhD Student Symposium.
Nov. 2016	A \$100,000 Amazon Academic Research Award for a grant I co-wrote with Alan Black for Amazon Alexa Prize Challenge² <i>The goal of the Alexa Prize challenge is to develop a social chatbot on the Amazon Echo platform. Our proposal was based on the TickTock system in [SIGDIAL 2016a].</i>
Dec. 2015	Selected as Rising Stars in EECS by MIT
Dec. 2015	Volunteer Award in IEEE Automatic Speech Recognition and Understand Workshop (ASRU 2015)
Nov. 2015	Student Travel Grant in ACM International Conference on Multimodal Interaction (ICMI 2015)
Sept. 2012	Quality of Life Fellowship
Dec. 2010	Best Paper Award in International Conferences on Internet Multimedia Computing and Service
Oct. 2010	Research and Innovation Award, 1st Place, Zhejiang University
May. 2010	Microsoft Young Fellowship from MSRA
May. 2010	Second Prize in Huawei Innovation Competition (First place in face recognition)
Oct. 2007– Oct.2010	Scholarship for Academic Excellent All-round Student for four years
Dec. 2009	Second prize in Calculus Competition in Zhejiang Province

Software and Datasets

² <https://developer.amazon.com/alexaprize>

TickTock Social Chatbot Framework

A multithreaded, multimodal dialog system framework with a flexible architecture for social chatting task.

HALEF Dialog System Framework

A distributed, modular, multimodal dialog system architecture for task-oriented dialogs.

TickTock Multimedia Data Set

An audio video recording dataset of social chatting conversations of human and TickTock system.

WOCHAT Social Chatbot Data Set

A text-only human-social catboat conversation data set of 624 conversations with 7 different chatbots.

Research Experience

Jan. 2011– present	Graduate Research Assist. at Carnegie Mellon University Advised by Prof. Alan W Black and Prof. Alexander I. Rudnicky on situated intelligent interactive systems.
May 2016 – Aug. 2016	Research Intern at Educational Testing Service in San Francisco Mentored by Prof. David Suendermann-Oeft on dialog systems and automatic language proficiency scoring via deep learning.
May 2015 – Aug. 2015	Research Intern at Educational Testing Service in San Francisco Distributed multimodal dialog system project extension.
Sept. 2014 – Dec. 2014	Research Intern at Microsoft Research in Redmond Mentored by Dan Bohus and Eric Horvitz on human-robot interaction and multimodal dialog systems.
June 2012 – Aug. 2013	Research Assist. at Institute of Creative Technology, USC in Los Angeles Mentored by Prof. Louis-Philippe Morency on multimodal analysis for computational social science.
June 2009 – June.2011	Research Assist. at State Key Lab. CAD&CG Zhejiang University , China Advised by Prof. Xiaofei He and Prof. Deng Cai on machine learning and computer vision.
May. 2009 – May.2010	Research Assist. at State Key Lab. CAD&CG Zhejiang University , China Mentored by Prof. Xiaohong Jiang on 3D plants reconstructions
June. 2009 – Sept.2009	Research Intern in B. M. Sreenivasaiah College of Engineering, Bangalore , India Mentored by Prof. Suma on medical image processing

Teaching Experiences

Sept. 2016	Section Instructor of Speech Processing , Main Instructor: Alan W Black
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Aug 2015	Tutorial Instructor on HALEF: distributed multimodal dialog systems at 11th Young Researchers' Roundtable on Spoken Dialog Systems (YRRSDS) .
Spring 2015	TA for Introduction to Machine Learning , Instructor: Alex Smola
Spring 2015	TA for Dialog System Lab : Instructor: Alexander Rudnicky and Alan W Black
Spring 2014, 2015	TA for LTI Colloquiums : Instructor: Alon Lavie and Ralf Brown

Students Mentored

Ziyu Xu, an undergrad in Carnegie Mellon University (Fall 2015–Fall 2016)

Integrating knowledge base information in social chatbots.

Xinrui He, now a master student in CMU LTI (Summer 2015, Fall 2016-now)

Cultural difference between Chinese and Americans when interacting with virtual agents.

Adam Stankiewicz, now a Ph.D. student in CMU HCII (Summer 2014)

Eye tracking for virtual agent control.

Nikita Gupta, now a software engineer in Yahoo! Inc. (Fall 2012)

Multimodal analysis for conversation partners' relationship in video-recordings.

Invited Talks

Feb. 2017	Situated Intelligent Interactive Systems, University of Pennsylvania, Philadelphia Pennsylvania.
Jan. 2017	Situated Intelligent Interactive Systems, University of Colorado Boulder, Colorado.
Jan. 2017	Situated Intelligent Interactive Systems, University of Washington, Seattle.
Jan. 2017	Situated Intelligent Interactive Systems, Allen Institute of Artificial Intelligence, Seattle.
Jan. 2017	Situated Intelligent Interactive Systems, Amazon, Seattle
Jan. 2017	Situated Intelligent Interactive Systems, OSU, Ohio.
Nov. 2016	Algorithms and Systems for Social Chatbots, Duolingo , Pittsburgh, Pennsylvania.
Aug. 2016	Multimodal Conversational Systems with User Coordination, Microsoft Research , Redmond, Washington.
July. 2016	Engagement in Multimodal Interactive Conversational Systems, Baidu Research , Sunnyvale, California.
July. 2016	Engagement in Multimodal Interactive Conversational Systems, Honda Research Institute (HRI) , Sunnyvale, California.
Jan. 2016	Engagement in Multimodal Interactive Conversational Systems, Computer Science Department, Shanghai Jiao Tong University (SJTU) , Shanghai, China.

Dec. 2015 Engagement in Multimodal Interactive Conversational Systems, Computer Science Department, **Northeastern University**, Boston, Massachusetts.

Dec. 2015 Engagement in Multimodal Interactive Conversational Systems, Electronic Engineering and Computer Science Department, **MIT**, Boston, Massachusetts.

Aug. 2015 Attention and Engagement Aware Multimodal Dialog Systems, **SRI**, Menlo Park, California.

July. 2015 Attention and Engagement Aware Multimodal Dialog Systems, ICSI, **University of California, Berkeley**, Berkeley, California.

July. 2015 Attention and Engagement Aware Multimodal Dialog Systems, **Nuance**, Sunnyvale, California.

Feb. 2015 Shaping Users' Attention via Disfluencies in Human Robot Interaction, **Yahoo!** Labs, New York, New York.

Professional Services

Co-organizer of the Chatbots and Conversational Agents special session in International Workshop for Spoken Dialog Systems (IWSDS) 2017

Co-organizer of **RE-WOCHAT** workshop share task in International Conference on Intelligent Virtual Agents (IVA) 2016

Co-organizer of **WOCHAT** workshop share task in Language Resources and Evaluation Conference (LREC) 2016

Organizing committee of the 10th and 11th **Young Researchers' Roundtable on Spoken Dialog Systems (YRRSDS)**, 2015 and 2016

Reviewer for **IEEE/ACM Transactions on Audio, Speech and Language Processing**

Reviewer for International Conference on **Empirical Methods in Natural Language Processing (EMNLP)** 2015, 2016

Reviewer for Annual Meeting of the Association of Computational Linguistics (ACL) 2017

Reviewer for **International Conference for Human-Robot Communication (HRI)** 2016

Reviewer for ACM **International Conference on Multimodal Interaction (ICMI)** 2015, 2016

Volunteer for IEEE **Automatic Speech Recognition and Understanding (ASRU)** 2016

Student member, **Association for Computing Machinery (ACM)**, 2013-present

Graduate student member, **IEEE** 2014-present