WCIS 2019: 1st Workshop on Conversational Interaction Systems

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ABSTRACT

The first workshop on Conversational Interaction Systems is held in Paris, France on July 25th, 2019, co-located with the ACM Special Interest Group on Information Retrieval (SIGIR). The goal of the workshop is to bring together researchers from academia and industry to discuss the challenges and future of conversational agents and interactive systems. The workshop has an exciting program that spans a number of subareas including: multi-modal conversational interfaces, dialogue accessibility, and scaling such systems. The program includes eight invited talks, a lively panel discussion on emerging topics, and presentation of original research papers.

CCS CONCEPTS

• **Computing methodologies** → **Natural language processing**; **Discourse, dialogue and pragmatics**; **Natural language generation**.

KEYWORDS

dialogue systems; multi-turn interactions; conversational interfaces; state tracking; multi-modal interfaces; question answering; neural networks; information retrieval systems

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1 INTRODUCTION

Conversational interaction systems such as Amazon Alexa, Google Assistant, Apple Siri, and Microsoft Cortana have become very popular over the recent years. Such systems provide a conversational interface to a wide variety of content and on the web and in turn for IR systems. Some interactive systems like Facebook Portal, Echo Show and Google Nest Hub also involve challenges with language understanding in combination with vision. Research challenges such as Dialogue System Technology Challenges [4–8, 17, 18] and Amazon Alexa Prize [12] have continued to inspire research in conversational AI bringing together researchers from different communities such as speech recognition, spoken language understanding, reinforcement learning, information retrieval, language generation, and multi-modal question answering.

This workshop aims to bring together researchers from academia and industry to discuss the challenges and future of conversational agents and interactive systems. We will highlight applications like recommendation systems [1, 16], search [3], knowledge graph induction [11], scalable dialogue state tracking [2, 13], multi-modal interaction [10], language generation [9, 15], and web question answering [14]. The workshop will include talks from senior technical leaders and researchers to share insights associated with building conversational systems at scale. As an outcome we expect the participants from the SIGIR community to walk away with a better understanding of modern conversational interfaces as well as key areas of research in this field.

2 SCOPE OF THE WORKSHOP

Conversation AI and information retrieval are highly interrelated fields. Both have been instrumental in development of large scale commercial personal assistants. For building scalable user facing conversational systems, information retrieval is necessary. For addressing more complicated retrieval tasks, knowledge grounding and multi-turn interactions are showing promising results. In this workshop, we aim to address a wide variety of challenges recommended but not limited to the following areas:

- End to end approaches for multi-turn dialog and retrieval systems
- Reinforcement and imitation learning for dialog and retrieval systems
- Dialog systems:
  - Dialog management and state tracking
  - Language generation and dialog evaluation
- Conversational approaches to information retrieval:
  - Multi-turn interactions for addressing complex queries
  - Conversational recommendation systems and personalization
  - Surfacing and realization of search results
- Visual dialog and question answering
- Human-human, human-machine and multi-modal interactions
- Usability, interpretability and explainability of conversational AI and IR models

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3 WORKSHOP ORGANIZATION AND PROGRAM

3.1 Organizers

Abhinav Rastogi is a dialogue systems researcher at Google Research. His research interests include natural language understanding, language generation and multimodal dialogue. Previously, he was at Stanford University, where he worked with Prof. Andrew Ng on video understanding and Prof. Christopher Manning on natural language inference. Abhinav holds degrees in Electrical Engineering from Stanford University and IIT Bombay.

Rahul Goel is a machine learning scientist at Alexa AI where he works on improving spoken language understanding and dialog systems. Many of his contributions are currently deployed in Alexa. His research interests include dialog systems, language understanding, deep learning, and social computing. Before joining Amazon he was at Georgia Tech working with Dr. Jacob Eisenstein on computational social science.

Alexandros Papangelis is currently with Uber AI, on the Conversational AI team; his interests include statistical dialogue management, natural language processing, and human-machine social interactions. Prior to Uber, he was with Toshiba Research Europe, leading the Cambridge Research Lab team on statistical spoken dialogue. Before joining Toshiba, he was a postdoctoral fellow at CMU designing and developing the next generation of socially-skilled virtual agents. He received his PhD from the University of Texas at Arlington, MSc from University College London, and BSc from the University of Athens.

Chandra Khatri is a researcher interested in Conversational AI efforts at Uber. Currently, he is interested in making conversational systems smarter and scalable while addressing the fundamental challenges in language understanding. Prior to Uber, he was the lead scientist at Alexa Prize and was driving the science for the Alexa Prize competition. Before that, he was a research scientist at eBay.

3.2 Contributed Paper and Reviews

We have received eight submissions. Each paper will receive reviews from at least two members of the program committee. Accepted papers will be presented at the workshop through invited talks and posters, and be hosted on the workshop website: https://sites.google.com/view/wcis.

3.3 Program Committee

Alessandra Cervone (University of Trento), Angeliki Metanillou (Alexa AI), Behnam Hedayatnia, Amazon (Alexa AI), Sanghyun Yi (Caltech), Semih Yavuz (University of California, Santa Barbara), Huaixiu Zheng (Uber AI), Marco Damonte (University of Edinburgh), Tagyoung Chung (Alexa AI), Raghav Gupta (Google Research), Tanmay Rajpurohit (Genpact AI), Dian Yu (UC Davis)

3.4 Advisory Committee

Dilek Hakkani-Tur (Alexa AI), Rushin Shah (Facebook AI), Gokhan Tur (Uber AI), Zhou Yu (UC Davis), Arindam Mandal (Alexa AI), Jan Sedivy (Czech Technical University), Panagiotis Papadakos (Forth-ICS), Raefer Gabriel (Alexa AI)

3.5 Invited Speakers

- Yun-Nung (Vivian) Chen, Assistant Professor, Dept. of Computer Science and Information Engineering National Taiwan University
- Anton Leuski, Research Assistant Professor, USC Viterbi School of Engineering Computer Science Department
- Laurianne Sitbon, Senior Lecturer, QUT University
- Pranav Khaitan, Senior Engineering Manager, Google Research
- Milica Gasic, Professor, Heinrich Heine University Düsseldorf
- Jan Sedivy, Technology Transfer Manager, Czech Technical University
- Camilo Ortiz, Researcher, Bloomberg LP

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