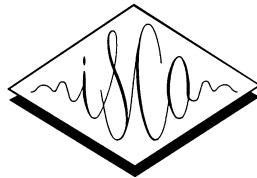


SIGDIAL 2022



**23rd Annual Meeting of the
Special Interest Group on Discourse and
Dialogue**



Proceedings of the Conference

07-09 September 2022
Heriot-Watt University, Edinburgh, UK

In cooperation with:

Association for Computational Linguistics (ACL)

International Speech Communication Association (ISCA)

Association for the Advancement of Artificial Intelligence (AAAI)

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Preface

We are glad to pen the first few words for the proceedings of SIGDIAL 2022, the 23rd Annual Meeting of the Special Interest Group on Discourse and Dialogue. The SIGDIAL conference is a premier publication venue for research in discourse and dialogue. This year the conference is organized as a hybrid event with both in-person and remote participation on September 7-9, 2022, at Heriot-Watt University, Edinburgh, Scotland, and is hosted by the Interaction Lab and the National Robotarium.

The SIGDIAL 2022 program features 3 keynote talks, 6 sessions of in-person paper presentations, including the special session on Natural Language in Human-Robot Interaction (NLiHRI), 2 in-person mixed demo and poster sessions, and 5 remote presentation sessions. The 2022 Young Researchers' Roundtable on Spoken Dialog Systems (YRRSDS 2022) is also being held as a satellite event, just before SIGDIAL, on September 5-6.

SIGDIAL received 140 submissions this year, comprising 79 long papers, 49 short papers, and 12 demo descriptions. We had 14 Senior Program Committee (SPC) members who were each responsible for 9-11 papers, leading the discussion process and also contributing with meta-reviews. Each submission was assigned to an SPC member and received at least three reviews. Decisions carefully considered the original reviews, meta-reviews, and discussions among reviewers facilitated by the SPCs. We are immensely grateful to the members of the Program Committee and Senior Program Committee for their efforts in providing excellent, thoughtful reviews of the large number of submissions. Their contributions have been essential to selecting the accepted papers and providing a high-quality technical program for the conference. We have aimed to develop a broad, varied program spanning the many positively-rated papers identified by the review process. We therefore accepted 64 papers in total: 37 long papers (47%), 19 short papers (39%), and 8 demo descriptions, for an overall acceptance rate of 45.7%. The topics to be presented demonstrate the current breadth of research in discourse and dialogue.

In organizing this hybrid in-person/ remote conference, we have tried to maintain as much of the spirit of a fully in-person conference as possible, allowing opportunities for questions and discussion. Recordings for all remote papers and demos will be made available, and will be played to the audience in the conference auditorium, with an opportunity for authors to answer questions live online. We have also set up slack channels for online discussions. Long remote papers will each be presented as a seven-minute pre-recorded talk followed by three minutes of live Q&A, and short/demo remote papers will be presented as a four-minute pre-recorded talk followed by three minutes of live Q&A. A conference of this scale requires the energy, guidance, and contributions of many parties, and we would like to take this opportunity to thank and acknowledge them all.

We thank our three keynote speakers, Yun-Nung (Vivian) Chen (National Taiwan University), Angeliki Lazaridou (DeepMind), and Giuseppe Carenini (University of British Columbia), for their inspiring talks on "Robustness, Scalability, and Practicality of Conversational AI", "On opportunities and challenges on communicating using Large Language Models", and "Unlimited discourse structures in the era of distant supervision, pre-trained language models and autoencoders". We also thank the organizers of the special session: "Natural Language in Human-Robot Interaction (NLiHRI)". We are grateful for their coordination with the main conference.

SIGDIAL 2022 is made possible by the dedication and hard work of our community, and we are indebted to many. The conference would not have been possible without the advice and support of the SIGDIAL board, particularly Gabriel Skantze and Milica Gasic. The hybrid nature of the conference inevitably increases the workload for the organizers, and so special thanks go to Daniel Hernández Garcia for his tireless effort in managing the website with timely updates, and to the team handling various online aspects of participation: Angus Addlesee, Arash Ashrafzadeh, Bhathiya Hemanthage, Selina Meyer, and Nikolas Vitsakis. Many thanks also go to Tanvi Dinkar, Amit Parekh, and Weronika Sieinska for their

support with local arrangements.

We would also like to thank the sponsorship chair David Vandyke, who has been our SIGDIAL ambassador to industry year after year. He continues to bring to the conference an impressive panel of conference sponsors. We thank David for his dedicated effort. We gratefully acknowledge the support of our sponsors: LivePerson (Platinum), Apple (Gold), Alana (Gold), Toshiba Research Europe (Silver), and Furhat Robotics (Bronze). In addition, we thank Malihe Alikhani, the publication chair, and Ondřej Dušek, the mentoring chair for their dedicated service.

Finally, it is our great pleasure to welcome you physically and remotely to the conference. We hope that you will have an enjoyable and productive experience, and leave with fond memories of SIGDIAL 2022. With our best wishes for a successful conference.

Fàilte gu Alba !

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Junyi Jessy Li, Dilek Hakkani-Tur, Program Co-Chairs

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Asad Sayeed, University of Gothenburg, Sweden
Kristina Striegnitz, Union College, United States
Jennifer Williams, University of Southampton, United Kingdom
Sina Zarrieß, University of Bielefeld, Germany

Invited Speakers:

Yun-Nung (Vivian) Chen, National Taiwan University, Taiwan
Angeliki Lazaridou, DeepMind, UK
Giuseppe Carenini, University of British Columbia, Canada

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Conference Program

Wednesday September 7, 2022

08:45–09:00 Opening Remarks

09:00–10:00 *Keynote 1: Robustness, Scalability, and Practicality of Conversational AI*
Yun-Nung (Vivian) Chen

10:00–10:30 Break

10:30–12:10 Oral Session 1: “E2E dialogue systems”

Post-processing Networks: Method for Optimizing Pipeline Task-oriented Dialogue Systems using Reinforcement Learning

Atsumoto Ohashi and Ryuichiro Higashinaka

Reducing Model Churn: Stable Re-training of Conversational Agents

Christopher Hidey, Fei Liu and Rahul Goel

Knowledge-Grounded Conversational Data Augmentation with Generative Conversational Networks

Yen Ting Lin, Alexandros Papangelis, Seokhwan Kim and Dilek Hakkani-Tur

Guiding the Release of Safer E2E Conversational AI through Value Sensitive Design

A. Stevie Bergman, Gavin Abercrombie, Shannon Spruit, Dirk Hovy, Emily Dinan, Y-Lan Boureau and Verena Rieser

Wednesday September 7, 2022 (continued)

12:10–13:00 Lunch

13:00–14:00 Poster + Demo Session 1

Controllable User Dialogue Act Augmentation for Dialogue State Tracking

Chun-Mao Lai, Ming-Hao Hsu, Chao-Wei Huang and Yun-Nung Chen

Developing an argument annotation scheme based on a semantic classification of arguments

Lea Kawaletz, Heidrun Dorgeloh, Stefan Conrad and Zeljko Bekic

Multi-Task Learning for Depression Detection in Dialogs

Chuyuan Li, Chloé Braud and Maxime Amblard

To laugh or not to laugh? The use of laughter to mark discourse structure

Bogdan Ludusan and Barbara Schuppler

QualityAdapt: an Automatic Dialogue Quality Estimation Framework

John Mendonca, Alon Lavie and Isabel Trancoso

Graph Neural Network Policies and Imitation Learning for Multi-Domain Task-Oriented Dialogues

Thibault Cordier, Tanguy Urvoy, Fabrice Lefèvre and Lina M. Rojas Barahona

The DialPort tools

Jessica Huynh, Shikib Mehri, Cathy Jiao and Maxine Eskenazi

Simultaneous Job Interview System Using Multiple Semi-autonomous Agents

Haruki Kawai, Yusuke Muraki, Kenta Yamamoto, Divesh Lala, Koji Inoue and Tatsuya Kawahara

Wednesday September 7, 2022 (continued)

14:00–15:00 Oral Session 2: NLiHRI Special Session

Dialog Acts for Task Driven Embodied Agents

Spandana Gella, Aishwarya Padmakumar, Patrick Lange and Dilek Hakkani-Tur

Symbol and Communicative Grounding through Object Permanence with a Mobile Robot

Josue Torres-Foncesca, Catherine Henry and Casey Kennington

Towards Personality-Aware Chatbots

Daniel Fernau, Stefan Hillmann, Nils Feldhus, Tim Polzehl and Sebastian Möller

15:00–15:25 NLiHRI Special Session Panel

15:25–15:45 Break

15:45–16:00 Sponsor Session: LivePerson, Alana, Apple, Toshiba, Furhat Robotics

16:00–17:00 Remote Session 1

Towards Socially Intelligent Agents with Mental State Transition and Human Value

Liang Qiu, Yizhou Zhao, Yuan Liang, Pan Lu, Weiyang Shi, Zhou Yu and Song-Chun Zhu

Automatic Verbal Depiction of a Brick Assembly for a Robot Instructing Humans

rami younes, Gérard Bailly, Frederic Elisei and Damien Pellier

Are Interaction Patterns Helpful for Task-Agnostic Dementia Detection? An Empirical Exploration

Shahla Farzana and Natalie Parde

EDU-AP: Elementary Discourse Unit based Argument Parser

Sougata Saha, Souvik Das and Rohini Srihari

Using Transition Duration to Improve Turn-taking in Conversational Agents

Charles Threlkeld, Muhammad Umair and JP de Ruiter

Wednesday September 7, 2022 (continued)

DG2: Data Augmentation Through Document Grounded Dialogue Generation

Qingyang Wu, Song Feng, Derek Chen, Sachindra Joshi, Luis Lastras and Zhou Yu

17:00–18:00 Remote Session 2

When can I Speak? Predicting initiation points for spoken dialogue agents

Siyan Li, Ashwin Paranjape and Christopher Manning

Using Interaction Style Dimensions to Characterize Spoken Dialog Corpora

Nigel Ward

Multi-Domain Dialogue State Tracking with Top-K Slot Self Attention

Longfei Yang, Jiyi Li, Sheng Li and Takahiro Shinozaki

Building a Knowledge-Based Dialogue System with Text Infilling

Qiang Xue, Tetsuya Takiguchi and Yasuo Ariki

D&D: When to Say What and How: Adapting the Elaborateness and Indirectness of Spoken Dialogue Systems

Juliana Miehle, Wolfgang Minker, Stefan Ultes

D&D: Cognitive and social delays in the initiation of conversational repair

Julia Beret Mertens and J. P. de Ruiter

D&D: Referential Communication Between Friends and Strangers in the Wild

Kris Liu, Trevor D'Arcey, Marilyn Walker, Jean Fox Tree

Wednesday September 7, 2022 (continued)

18:00 Drinks Reception

Thursday September 8, 2022

09:00–10:00 *Keynote 2: On opportunities and challenges on communicating using Large Language Models*
Angeliki Lazaridou

10:00–10:30 Break

10:30–12:10 Oral Session 3: “Generation”

Generating Meaningful Topic Descriptions with Sentence Embeddings and LDA
Javier Miguel Sastre Martinez, Sean Gorman, Aisling Nugent and Anandita Pal

How Well Do You Know Your Audience? Toward Socially-aware Question Generation
Ian Stewart and Rada Mihalcea

GenTUS: Simulating User Behaviour and Language in Task-oriented Dialogues with Generative Transformers
Hsien-chin Lin, Christian Geishauser, Shutong Feng, Nurul Lubis, Carel van Niekerk, Michael Heck and Milica Gasic

AARGH! End-to-end Retrieval-Generation for Task-Oriented Dialog
Tomáš Nekvinda and Ondřej Dušek

Thursday September 8, 2022 (continued)

12:10–13:00 Lunch

13:00–14:40 Oral Session 4: “Deep dives into dialogue systems”

A Systematic Evaluation of Response Selection for Open Domain Dialogue

Behnam Hedayatnia, Di Jin, Yang Liu and Dilek Hakkani-Tur

Inferring Ranked Dialog Flows from Human-to-Human Conversations

Javier Miguel Sastre Martinez and Aisling Nugent

Structured Dialogue Discourse Parsing

Ta-Chung Chi and alexander rudnicky

"Do you follow me?": A Survey of Recent Approaches in Dialogue State Tracking

Léo Jacqmin, Lina M. Rojas Barahona and Benoit Favre

14:40–15:00 Break

15:00–16:00 Remote Session 3

MultiWOZ 2.4: A Multi-Domain Task-Oriented Dialogue Dataset with Essential Annotation Corrections to Improve State Tracking Evaluation

Fanghua Ye, Jarana Manotumruksa and Emine Yilmaz

The Duration of a Turn Cannot be Used to Predict When It Ends

Charles Threlkeld and JP de Ruiter

Getting Better Dialogue Context for Knowledge Identification by Leveraging Document-level Topic Shift

Nhat Tran and Diane Litman

Neural Generation Meets Real People: Building a Social, Informative Open-Domain Dialogue Agent

Ethan A. Chi, Ashwin Paranjape, Abigail See, Caleb Chiam, Trenton Chang, Kathleen Kenealy, Swee Kiat Lim, Amelia Hardy, Chetanya Rastogi, Haojun Li, Alexander Iyabor, Yutong He, Hari Sowrirajan, Peng Qi, Kaushik Ram Sadagopan, Nguyet Minh Phu, Dilara Soylu, Jillian Tang, Avanika Narayan, Giovanni Campagna and Christopher Manning

Thursday September 8, 2022 (continued)

DeepCon: An End-to-End Multilingual Toolkit for Automatic Minuting of Multi-Party Dialogues

Aakash Bhatnagar, Nidhir Bhavsar and Muskaan Singh

ICM : Intent and Conversational Mining from Conversation Logs

Sayantana Mitra, Roshni Ramnani, Sumit Ranjan and Shubhashis Sengupta

16:00–17:00 Remote Session 4

Entity-based De-noising Modeling for Controllable Dialogue Summarization

Zhengyuan Liu and Nancy Chen

iEval: Interactive Evaluation Framework for Open-Domain Empathetic Chatbots

Ekaterina Svikhnushina, Anastasiia Filippova and Pearl Pu

Unsupervised Domain Adaptation on Question-Answering System with Conversation Data

Amalia Adiba, Takeshi Homma and Yasuhiro Sogawa

UniDU: Towards A Unified Generative Dialogue Understanding Framework

Zhi Chen, Lu Chen, Bei Chen, Libo Qin, Yuncong Liu, Su Zhu, Jian-Guang LOU and Kai Yu

Advancing Semi-Supervised Task Oriented Dialog Systems by JSA Learning of Discrete Latent Variable Models

Yucheng Cai, Hong Liu, Zhijian Ou, Yi Huang and Junlan Feng

Thursday September 8, 2022 (continued)

17:00–18:00 Remote Session 5

Redwood: Using Collision Detection to Grow a Large-Scale Intent Classification Dataset

Stefan Larson and Kevin Leach

Dialogue Evaluation with Offline Reinforcement Learning

Nurul Lubis, Christian Geishauer, Hsien-chin Lin, Carel van Niekerk, Michael Heck, Shutong Feng and Milica Gasic

Disruptive Talk Detection in Multi-Party Dialogue within Collaborative Learning Environments with a Regularized User-Aware Network

Kyungjin Park, Hyunwoo Sohn, Wookhee Min, Bradford Mott, Krista Glazewski, Cindy E. Hmelo-Silver and James Lester

Generating Discourse Connectives with Pre-trained Language Models: Conditioning on Discourse Relations Helps Reconstruct the PDTB

Symon Stevens-Guille, Aleksandre Maskharashvili, Xintong Li and Michael White

Toward Self-Learning End-to-End Task-oriented Dialog Systems

Xiaoying ZHANG, Baolin Peng, Jianfeng Gao and Helen Meng

19:30 Banquet

Friday September 9, 2022

09:00–10:00 *Keynote 3: Unlimited discourse structures in the era of distant supervision, pre-trained language models and autoencoders*
Guiseppe Carenini

Friday September 9, 2022 (continued)

10:00–10:15 Break

10:15–11:30 Oral Session 5: “Dynamics and Methods I”

Combining Structured and Unstructured Knowledge in an Interactive Search Dialogue System

Svetlana Stoyanchev, Suraj Pandey, Simon Keizer, Norbert Braunschweiler and Rama Sanand Doddipatla

How Much Does Prosody Help Turn-taking? Investigations using Voice Activity Projection Models

Erik Ekstedt and Gabriel Skantze

What makes you change your mind? An empirical investigation in online group decision-making conversations

Georgi Karadzhov, Tom Stafford and Andreas Vlachos

11:30–11:40 Break

11:40–12:55 Oral Session 6: “Dynamics and Methods II”

Dialogue Term Extraction using Transfer Learning and Topological Data Analysis

Renato Vukovic, Michael Heck, Benjamin Ruppik, Carel van Niekerk, Marcus Zibrowius and Milica Gasic

Evaluating N-best Calibration of Natural Language Understanding for Dialogue Systems

Ranim Khojah, Alexander Berman and Staffan Larsson

LAD: Language Models as Data for Zero-Shot Dialog

Shikib Mehri, Yasemin Altun and Maxine Eskenazi

Friday September 9, 2022 (continued)

12:55–13:45 Lunch

13:45–14:45 Poster + Demo Session 2:

Improving Bot Response Contradiction Detection via Utterance Rewriting

Di Jin, Sijia Liu, Yang Liu and Dilek Hakkani-Tur

Comparison of Lexical Alignment with a Teachable Robot in Human-Robot and Human-Human-Robot Interactions

Yuya Asano, Diane Litman, Mingzhi Yu, Nikki Lobczowski, Timothy Nokes-Malach, Adriana Kovashka and Erin Walker

TREND: Trigger-Enhanced Relation-Extraction Network for Dialogues

Po-Wei Lin, Shang-Yu Su and Yun-Nung Chen

User Satisfaction Modeling with Domain Adaptation in Task-oriented Dialogue Systems

Yan Pan, Mingyang Ma, Bernhard Pflugfelder and Georg Groh

N-best Response-based Analysis of Contradiction-awareness in Neural Response Generation Models

Shiki Sato, Reina Akama, Hiroki Ouchi, Ryoko Tokuhisa, Jun Suzuki and Kentaro Inui

A Visually-Aware Conversational Robot Receptionist

Nancie Gunson, Daniel Hernandez Garcia, Weronika Sieińska, Angus Addelee, Christian Dondrup, Oliver Lemon, Jose L. Part and Yanchao Yu

Demonstrating EMMA: Embodied MultiModal Agent for Language-guided Action Execution in 3D Simulated Environments

Alessandro Suglia, Bhathiya Hemanthage, Malvina Nikandrou, George Pantazopoulos, Amit Parekh, Arash Eshghi, Claudio Greco, Ioannis Konstas, Oliver Lemon and Verena Rieser

GRILLBot: A multi-modal conversational agent for complex real-world tasks

Carlos Gemmell, Federico Rossetto, Iain Mackie, Paul Owoicho, Sophie Fischer and Jeff Dalton

A System For Robot Concept Learning Through Situated Dialogue

Benjamin Kane, Felix Gervits, Matthias Scheutz and Matthew Marge

Friday September 9, 2022 (continued)

14:45 SIGDIAL BUSINESS MEETING

15:15 CLOSING and BEST PAPER AWARDS

Keynote Abstracts

Keynote 1 - Robustness, Scalability, and Practicality of Conversational AI

Yun-Nung (Vivian) Chen

National Taiwan University

Abstract

Even conversational systems have attracted a lot of attention recently, there are many remaining challenges to be resolved. This talk presents three different dimensions for improvement: 1) Robustness — how to deal with speech recognition errors for better language understanding performance, 2) Scalability — how to better utilize the limited data, and 3) Practicality — how to naturally perform recommendation in a conversational manner. All directions enhance the usefulness of conversational systems, showing the potential of guiding future research areas

Biography

Yun-Nung (Vivian) Chen is currently an associate professor in the Department of Computer Science Information Engineering at National Taiwan University. She earned her Ph.D. degree from Carnegie Mellon University, where her research interests focus on spoken dialogue systems and natural language processing. She was recognized as the Taiwan Outstanding Young Women in Science and received Google Faculty Research Awards, Amazon AWS Machine Learning Research Awards, MOST Young Scholar Fellowship, and FAOS Young Scholar Innovation Award. Her team was selected to participate in the first Alexa Prize TaskBot Challenge in 2021. Prior to joining National Taiwan University, she worked in the Deep Learning Technology Center at Microsoft Research Redmond.

Keynote 2 - On opportunities and challenges on communicating using Large Language Models

Angeliki Lazaridou

DeepMind

Abstract

From science fiction to Turing's seminal work on AI, language and communication have been among the central components of intelligent agents. Towards that dream, the new-generation of large language models (LLMs) have recently given rise to a new set of impressive capabilities, from generating human-like text to engaging in simple, few-turn conversations. So, how close do LLMs bring us to being able to interact with such intelligent agents during our lifetime? In this talk, I will review key recent developments on LLMs by the community and I will discuss these in the context of advancing communication research. At the same time, I will also highlight challenges of current models in producing goal-driven, safe and factual dialogues. Capitalizing on their strengths and addressing their weaknesses might allow us to unlock LLMs full potential in responsibly interacting with us, humans, about different aspects of our lives.

Biography

Angeliki Lazaridou is a Staff Research Scientist at DeepMind. She received a PhD in Brain and Cognitive Sciences from the University of Trento. Her PhD initially focused on developing neural network models and techniques for teaching agents language in grounded environments. However, one day in late 2015, while walking towards the lab she realized that interaction and communication should play a key role in this learning. This was the beginning of her work in deep learning and multi-agent communication. In the following years, she looked at this fascinating problem from many different angles: how to make this learning more realistic or how to extend findings from cooperative to self-agents and even how to make this communication resemble more natural language. Currently, she spends most of her time thinking and working on how to best make language models be in sync with the complex and ever-evolving world.

Keynote 3 - Unlimited discourse structures in the era of distant supervision, pre-trained language models and autoencoders

Giuseppe Carenini

University of British Columbia

Abstract

Historically, discourse processing relies on human annotated corpora that are very small and lack diversity, often leading to overfitting, poor performance in domain transfer, and minimal success of modern deep-learning solutions. So, wouldn't it be great if we could generate an unlimited amount of discourse structures for both monologues and dialogues, across genres, without involving human annotation? In this talk, I will present some preliminary results on possible strategies to achieve this goal: by either leveraging natural text annotations (like sentiment and summaries), by extracting discourse information from pre-trained and fine-tuned language models, or by inducing discourse trees from task-agnostic autoencoding learning objectives. Besides the many remaining challenges and open issues, I will discuss the potential of these novel approaches not only to boost the performance of discourse parsers (NLU) and text planners (NLG), but also lead to more explanatory and useful data-driven theories of discourse.

Biography

Giuseppe Carenini is a Professor in Computer Science and Director of the Master in Data Science at UBC (Vancouver, Canada). His work on natural language processing and information visualization to support decision making has been published in over 140 peer-reviewed papers (including best paper at UMAP-14 and ACM-TiiS-14). Dr. Carenini was the area chair for many conferences including recently for ACL'21 in "Natural language Generation", as well as Senior Area Chair for NAACL'21 in "Discourse and Pragmatics". Dr. Carenini was also the Program Co-Chair for IUI 2015 and for SigDial 2016. In 2011, he published a co-authored book on "Methods for Mining and Summarizing Text Conversations". In his work, Dr. Carenini has also extensively collaborated with industrial partners, including Microsoft and IBM. He was awarded a Google Research Award in 2007 and a Yahoo Faculty Research Award in 2016.

