ReInAct 2021

Proceedings of the Conference on Reasoning and Interaction

Christine Howes, Simon Dobnik, Ellen Breitholtz and Stergios Chatzikyriakidis (eds.)

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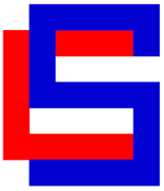

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Introduction

This volume contains the papers presented at the CLASP Reasoning and Interaction conference (ReInAct 2021) at the Department of Philosophy, Linguistics and Theory of Science (FLoV), University of Gothenburg, held on October 4–6th, 2021.

ReInAct brings together researchers interested in computationally relevant approaches to reasoning and interaction in natural language, including machine learning, symbolic and experimental approaches, as well as combinations of these.

Papers were invited on topics in these and closely related areas, including (but not limited to) visual, dialogue and multi-modal inference systems; neurolinguistic and psycho-linguistic experimental approaches to reasoning and interaction; dialogue modelling and linguistic interaction; formal approaches to social meaning; statistical, machine learning and information theoretic approaches to reasoning and interaction; methodologies and practices for annotating dialogue and multi-modal datasets; formal aspects of reasoning and interaction; visual, dialogue and multi-modal generation; semantics and pragmatics of dialogue acts; multimodal and grounded approaches to computing meaning; semantics-pragmatics interface; applications of visual, dialogue and multi-modal system technology.

This conference aims to initiate a genuine discussion between these related areas and to examine different approaches and how these can inform each other. It features 3 invited talks by leading researchers, and 9 peer-reviewed papers.

We would like to thank all our contributors and programme committee members, with special thanks to CLASP for organising the hybrid conference and our sponsors SIGSEM http://sigsem.org, the ACL special interest group on semantics, and the Swedish Research Council for funding CLASP.

Christine Howes, Simon Dobnik, Ellen Breitholtz, and Stergios Chatzikyriakidis

Gothenburg

October 2021

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Sina Zarrieß	Universität Bielefeld

Invited Speakers:

Verena Rieser, Heriot-Watt University, Edinburgh
Joyce Chai, University of Michigan
Riccardo Fusaroli, Aarhus University

Invited talk 1: Verena Rieser

Responsible Conversational AI: Trusted, Safe and Bias-free

With recent progress in deep learning, there has been an increased interest in learning dialogue systems from data, also known as "Conversational AI". In this talk, I will focus on the task of response generation, for which I will highlight lessons learnt and ongoing challenges, such as reducing 'hallucinations' for task-based systems, safety critical issues for open-domain chat-bots, and the often overlooked problem of 'good' persona design. I will argue that we will need to solve these challenges to create trusted, safe and bias-free systems for end-user applications.

Invited talk 2: Joyce Chai

Language, Action, and Physical Causality

Language communication plays an important role in human learning and skill acquisition. With the emergence of a new generation of cognitive robots, it becomes increasingly important to empower these embodied agents with an ability to learn directly from human partners through language. One of the key challenges is to connect language with actions in the physical world, whether it is to perceive actions or to execute actions. While we humans develop an understanding of physical actions and their cause and effect to the physical world at a very young age, such understanding of physical causality is a major bottleneck in machine intelligence. In this talk, I will give a brief introduction to our recent work on grounding language to actions in the context of communicative task learning. I will highlight the important role of physical causality in this process and discuss key research challenges and opportunities.

Invited talk 3: Riccardo Fusaroli

Interactive linguistic alignment in perspective: How do we re-use each other's language to understand each other, solve problem together and learn language

In this talk I will present an overview on interactive linguistic alignment, the tendency to re-use one's interlocutor's linguistic forms. From an early enthusiastic foray (Fusaroli et al 2012, Coming to terms), I will move onto the challenges of building standardised tools to analyse alignment (Duran et al 2019, ALIGN) and the overview that is emerging when applying these tools to a variety of domains: diverse conversational tasks, diverse languages, diverse language acquisition stages and clinical populations.

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Conference Program

Monday 4th October

14:30–15:00 ***Opening Remarks***

15:00–16:00 *Invited Talk: Verena Rieser*

16:15-16:45 *Incremental Graph-Based Semantics and Reasoning for Conversational AI*
Angus Addlesee and Arash Eshghi

16:45 *The Impact of Answers in Referential Visual Dialog*
Mauricio Mazuecos, Patrick Blackburn and Luciana Benotti

Tuesday 5th October

10:30–11:15 *Semantic Classification and Learning Using a Linear Tranformation Model in a Probabilistic Type Theory with Records*
Staffan Larsson and Jean-Philippe Bernardy

11:15–12:00 *Communicative Grounding of Analogical Explanations in Dialogue: A Corpus Study of Conversational Management Acts and Statistical Sequence Models for Tutoring through Analogy*
Jorge Del-Bosque-Trevino, Julian Hough and Matthew Purver

13:15–14:00 *The Spoon Is in the Sink: Assisting Visually Impaired People in the Kitchen*
Katie Baker, Amit Parekh, Adrien Fabre, Angus Addlesee, Ruben Kruiper and Oliver Lemon

14:00–14:45 *Dogwhistles as Inferences in Interaction*
Ellen Breitholtz and Robin Cooper

14:45–15:15 *Decoupling Pragmatics: Discriminative Decoding for Referring Expression Generation*
Simeon Schüz and Sina Zarrieß

15:30–16:30 *Invited talk: Joyce Chai*

Wednesday 6th October

10:00–11:00 *Invited talk: Ricardo Fusaroli*

11:15–11:45 *Generating Justifications in a Spatial Question-Answering Dialogue System for a Blocks World*
Georgiy Platonov, Benjamin Kane and Lenhart Schubert

11:45–12:30 *Why Should I Turn Left? Towards Active Explainability for Spoken Dialogue Systems.*
Vladislav Maraev

13:30–15:15 *NLI in Dialogue*