IEEE Transactions on AI: Special Issue on: "Conversational AI"

Conversational AI is an emerging interdisciplinary research and innovation field, involving diverse topics ranging from machine learning, speech and natural language processing, understanding and generation, to ethics, sociology and psychology. It has gained increasing popularity in recent years through effective integration in commercial personal assistants such as Apple Siri, Amazon Alexa, Google Personal Assistant, ChatGPT, and many others.

State of the art in conversational AI is being advanced through a number of global initiatives, including the Amazon Alexa prize competition and NeurIPS Conversational Intelligence Challenge live competition. These are continuing to identify and address various open challenges and questions including, in particular, the growing need for large multi-modal language models to deliver more natural, socially responsible and mult-lingual conversational agents, user interfaces and human-machine dialogue systems.

This timely special issue aims to bring together interdisciplinary communities to advance state-of-the-art in conversational AI technologies and applications. It will also serve to promote cross-fertilisation of ideas and insights and bridge the gap between academic research and commercial innovation in the area.

Areas of interest include but are not limited to:

- Large language models in conversational AI and human-machine dialog systems
- ChaptGPT variations
- Speech based multi-modal processing for conversational AI
- Contextual language understanding and natural language processing internationalisation
- Emotion-sensitive dialog/chatbot/agent systems
- Semi-supervised, self-supervised and reinforcement learning in dialog/chatbot/agent systems
- Human-in-the-loop trustworthy dialog/chatbot/agent systems
- Contextual multimodal dialog data collection and evaluation
- User preference-aware evaluation of dialog/chatbot/agent systems
- Trustworthy discourse modeling
- Unimodal and multimodal coreference resolution in natural dialog
- Natural dialog representation learning
- Natural language processing for conversational AI
- New Interdisciplinary and integrative approaches, such as contextual integration of conversational AI, chatbots and robots, with IoT, 5G/6G, wireless/wearable sensing, augmented/mixed reality.
- Applications with novel contributions in different domains including assistive hearing, speech communication technology, healthcare, customer service, sales, marketing, retail and e-commerce.

Timeline:

- Submission deadline: July 30, 2023
- First notification: September 30, 2023
- Subsequent review rounds as required
- Final decision: January 31, 2024
- Expected Publication date: End of 2024

Guest Editors:

Amir Hussain, Edinburgh Napier University, UK E-mail: a.hussain@napier.ac.uk

Oliver Lemon, Heriot-Watt University, Edinburgh, UK E-mail: o.lemon@hw.ac.uk

Roberto Pieraccini, (formerly) Google NYC, USA   Email: robertopieracc@gmail.com

Dong Yu, Tencent AI Lab, USA E-mail: dongyu@ieee.org