

ICON 2020

**17th International Conference on Natural Language
Processing**

Proceedings of the Workshop

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Introduction

Welcome to the ICON 2020 Workshop on Joint NLP Modelling for Conversational AI.

Virtual Assistants/Dialog Systems are spanning from cloud-based systems to embedded devices formulating a hybrid architecture for several reasons such as privacy of the data, faster processing, offline interaction, personalization etc. There are several NLP tasks running as part of the Virtual Assistant example Domain Classification, Intent Determination, Slot Extraction, Dialog Management, Natural Language Generation, Text to Speech and Automatic Speech Recognition. Thus, in both cloud and embedded devices, it is necessary to combine various NLP tasks to improve latency and memory usage. Additionally, a joint NLP model is suitable for both cloud and embedded devices processing.

Virtual Assistants/Dialog Systems are also capable of learning by themselves from various information accessible to it. For example, contextual data, personal data, queries, unhandled or failed queries etc. It is a very interesting area to explore how a joint model can incrementally learn from the data available to the Virtual Assistant.

The goal of this workshop is to bring together NLP researchers and practitioners in different fields, alongside experts in speech and machine learning, to discuss the current state-of-the-art and new approaches, to share insights and challenges, to bridge the gap between academic research and real-world product deployment, and to shed the light on future directions. “Joint NLP modelling for Conversational AI” will be a one-day workshop including keynotes, spotlight talks, posters, and panel sessions. In keynote talks, senior technical leaders from industry and academia will share insights on the latest developments of the field. An open call for papers will be announced to encourage researchers and students to share their prospects and latest discoveries. The panel discussion will focus on the challenges, future directions of conversational AI research, bridging the gap in research and industrial practice, as well as audience suggested topics.

We received 16 submissions, and after a rigorous review process, we only accepted 6 papers. The overall acceptance rate for the workshop was 37.5%.

Joint NLP modelling for Conversational AI ICON 2020 Organizers

Ranjan Kumar Samal, Bixby AI, Samsung Electronics

Praveen Kumar GS, Bixby AI, Samsung Electronics

Siddhartha Mukherjee, Bixby AI, Samsung Electronics

Organizers

Ranjan Kumar Samal - Architect of NLU, Samsung Research Institute-Bangalore

Praveen Kumar GS - Director of NLU, Samsung Research Institute-Bangalore

Siddhartha Mukherjee - Engg. Leader of NLU, Samsung Research Institute-Bangalore

Program Committee:

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 - Anish Nediyachanth
 - Bharatram Natarajan
 - Dr. Priyadarshini Pai
 - Dr. Sandip Bapat
 - Dr. Jayesh Mundayadan Koroth
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 - Dr. Sriparna Saha, Professor, Department of Comp Sc & Engg, IIT Patna
- Members from IIT-Palakkad
 - Dr. Mrinal kanti Das, Assistant Professor, CSE, IIT Palakkad
- Members from POSTECH, South Korea
 - Dr. Jinwoo Park, CSE, POSTECH, Republic of Korea

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Workshop Program

Monday, December 21, 2020

10:00 *Opening Note by Praveen Kumar G S, Director and Head of NLU, SRIB*

10:15 *"Transformation from NLU to Multimodal NLU" by Siddhartha Mukherjee, Staff Engineering Manager of NLU, SRIB*

11:00 *Neighbor Contextual Information Learners for Joint Intent and Slot Prediction*
Bharatram Natarajan, Gaurav Mathur and Sameer Jain

11:30 *Unified Multi Intent Order and Slot Prediction using Selective Learning Propagation*
Bharatram Natarajan, Priyank Chhipa, Kritika Yadav and Divya Verma Gogoi

12:00 *EmpLite: A Lightweight Sequence Labeling Model for Emphasis Selection of Short Texts*
Vibhav Agarwal, Sourav Ghosh, Kranti CH, Bharath Challa, Sonal Kumari, Harshavardhana and BARATH RAJ KANDUR RAJA

12:30 *Optimized Web-Crawling of Conversational Data from Social Media and Context-Based Filtering*
Annapurna P Patil, Rajarajeswari Subramanian, Gaurav Karkal, Keerthana Purushotham, Jugal Wadhwa, K Dhanush Reddy and Meer Sawood

13:00 *Lunch Break*

14:00 *AI for real-world and AI for future; Panel Discussion by Senior Thought Leaders at SRIB by Praveen Kumar GS, Ratnakar Rao VR, Sreevatsa DB, Ritesh Jain, Srinivasa Rao Kudavelly*

15:00 *Named Entity Popularity Determination using Ensemble Learning*
Vikram Karthikeyan, B Shrikara Varna, Amogha Hegde, Govind Satwani, Shambhavi B R, Jayarekha P and Ranjan Samal

15:30 *"Discovering Subtle Information from Texts using Bayesian Models" by Dr. Mritinal Kanti Das, Assistant Professor, CSE, IIT Palakkad*

16:30

A character representation enhanced on-device Intent Classification

Sudeep Deepak Shivnikar, Himanshu Arora and Harichandana B S S

17:00

Closing Note by Ranjan Samal, Architect of NLU, SRIB