# NAACL-HLT 2021

The 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies

Demonstrations

June 6 - 11, 2021

©2021 The Association for Computational Linguistics

Order copies of this and other ACL proceedings from:

Association for Computational Linguistics (ACL) 209 N. Eighth Street Stroudsburg, PA 18360 USA Tel: +1-570-476-8006 Fax: +1-570-476-0860 acl@aclweb.org

ISBN 978-1-954085-48-0

# Introduction

Welcome to the proceedings of the system demonstration track of NAACL-HLT 2021 on Jun 6th - Jun 11th, 2021. NAACL-HLT 2021 will be a virtual conference.

The system demonstration track invites submissions ranging from early prototypes to mature productionready systems. This year we received 42 submissions, of which 17 were selected for inclusion in the program (acceptance rate 40.5%) after reviewed by three members of the program committee.

This is the first year NAACL-HLT incorporates ethical considerations in the review process. In the standard review stage, members of the program committee are given the option to flag a paper as needing separate ethics reviews. Papers flagged as needing separate ethics reviews by at least one members from the program committee are subsequently reviewed by two members from the NAACL-HLT 2021 ethics committee. In total, 4 papers went through the subsequent ethics review stage, of which 1 was offered conditional acceptance, 2 were accepted as it is and 1 was deemed as a false positive flag. The conditionally accepted paper was re-reviewed by the ethics committee post camera-ready submission and accepted to the program based on addressed ethical concerns.

We would like to thank the members of the program committee and ethics committee for their timely help in reviewing the submissions. We also thank the many authors who submitted their work to the demonstration track. The demonstration paper will be presented through pre-recorded talks (12 minutes) and one live online Q&A session (80 minutes).

Best, Avi Sil and Xi Victoria Lin NAACL-HLT 2021 Demonstration Track Chairs

## **Organizing Committee:**

Avi Sil, IBM Research AI Xi Victoria Lin, Facebook AI Research

## **Program Committee:**

Ahmed Abdelali, Qatar Computing Research Institute Alan Akbik, Humboldt-Universität zu Berlin Zeynep Akkalyoncu, University of Waterloo Bo An, Institute of Software, Chinese Academy of Sciences Eleftherios Avramidis, German Research Center for Artificial Intelligence (DFKI) Gianni Barlacchi, Amazon Alexa Bernd Bohnet, Google Georgeta Bordea, Université de Bordeaux Alioscha Burchardt, DFKI José G. C. de Souza, Unbabel Christos Christodoulopoulos, Amazon Research Montse Cuadros, Vicomtech Giovanni Da San Martino, University of Padova Marina Danilevsky, IBM Research Joseph P. Dexter, Harvard University Chenchen Ding, NICT James Fan, Google Nicolas Rodolfo Fauceglia, IBM Research AI Ming Gong, STCA NLP Group, Microsoft (China) Ben Hachey, Harrison.ai Masato Hagiwara, Octanove Labs LLC Xianpei Han, Institute of Software, Chinese Academy of Sciences Xu Han, Tsinghua University Barbora Hladka, Charles University Ales Horak, Masaryk University Shajith Ikbal, IBM Research AI, India. Philipp Koehn, Johns Hopkins University Mamoru Komachi, Tokyo Metropolitan University Valia Kordoni, Humboldt-Universität zu Berlin Vishwajeet Kumar, IBM Research AI Mark Last, Ben-Gurion University of the Negev John Lee, City University of Hong Kong Hao Li, ByteDance Marina Litvak, Shamoon College of Engineering Changsong Liu, University of California, Los Angeles Wei Lu, Singapore University of Technology and Design Suraj Maharjan, University of Houston Wolfgang Maier, Mercedes-Benz AG Benjamin Marie, NICT David McClosky, Google Marie-Jean Meurs, Université du Québec à Montréal Ivan Vladimir Meza Ruiz, Insituto de Investigaciones en Matemáticas Aplicadas y en Sistemas (IIMAS-UNAM) Margot Mieskes, University of Applied Sciences, Darmstadt Hamdy Mubarak, Qatar Computing Research Institute

Aldrian Obaja Muis, None Philippe Muller, IRIT, University of Toulouse Diane Napolitano, The Associated Press Denis Newman-Griffis, University of Pittsburgh Pierre Nugues, Lund University Yusuke Oda, LegalForce Siddharth Patwardhan, Apple Oren Pereg, AI Lab, Intel Labs Prokopis Prokopidis, ILSP/Athena RC Saurav Sahay, Intel Labs Sebastin Santy, Microsoft Research Liang-Hsin Shen, National Taiwan University Michal Shmueli-Scheuer, IBM Research Sunayana Sitaram, Microsoft Research India Konstantinos Skianis, BLUAI Dezhao Song, Thomson Reuters Yuanfeng Song, Hong Kong University of Science and Technology, WeBank Co., Ltd Michael Stewart, The University of Western Australia Natalia Vanetik, Shamoon College of Engineering Andrea Varga, CUBE Changhan Wang, Facebook AI Research Rui Wang, VIP.com Deyi Xiong, Tianjin University Qiongkai Xu, The Australian National University and Data61 Tae Yano, Expedia Group Wenlin Yao, Tencent AI Lab Seid Muhie Yimam, Universität Hamburg Dian Yu, University of California, Davis Mo Yu, IBM Research Liang-Chih Yu, Yuan Ze University Jun Zhao, Chinese Academy of Sciences Guangyou Zhou, School of Computer Science, Central China Normal University Imed Zitouni, Google

# **Table of Contents**

| PhoNLP: A joint multi-task learning model for Vietnamese part-of-speech tagging, named entity recognition and dependency parsing         Linh The Nguyen and Dat Quoc Nguyen         1   |
|--|
| Machine-Assisted Script Curation         Manuel Ciosici, Joseph Cummings, Mitchell DeHaven, Alex Hedges, Yash Kankanampati, Dong-         Ho Lee, Ralph Weischedel and Marjorie Freedman   |
| NAMER: A Node-Based Multitasking Framework for Multi-Hop Knowledge Base Question Answering<br>Minhao Zhang, Ruoyu Zhang, Lei Zou, Yinnian Lin and Sen Hu   |
| DiSCoL: Toward Engaging Dialogue Systems through Conversational Line Guided Response Generation<br>Sarik Ghazarian, Zixi Liu, Tuhin Chakrabarty, Xuezhe Ma, Aram Galstyan and Nanyun Peng26  |
| <i>FITAnnotator: A Flexible and Intelligent Text Annotation System</i><br>Yanzeng Li, Bowen Yu, Li Quangang and Tingwen Liu  |
| Robustness Gym: Unifying the NLP Evaluation LandscapeKaran Goel, Nazneen Fatema Rajani, Jesse Vig, Zachary Taschdjian, Mohit Bansal and ChristopherRé42  |
| <i>EventPlus: A Temporal Event Understanding Pipeline</i><br>Mingyu Derek Ma, Jiao Sun, Mu Yang, Kung-Hsiang Huang, Nuan Wen, Shikhar Singh, Rujun<br>Han and Nanyun Peng  |
| <ul> <li>COVID-19 Literature Knowledge Graph Construction and Drug Repurposing Report Generation<br/>Qingyun Wang, Manling Li, Xuan Wang, Nikolaus Parulian, Guangxing Han, Jiawei Ma, Jingxuan<br/>Tu, Ying Lin, Ranran Haoran Zhang, Weili Liu, Aabhas Chauhan, Yingjun Guan, Bangzheng Li, Ruisong<br/>Li, Xiangchen Song, Yi Fung, Heng Ji, Jiawei Han, Shih-Fu Chang, James Pustejovsky, Jasmine Rah,<br/>David Liem, Ahmed ELsayed, Martha Palmer, Clare Voss, Cynthia Schneider and Boyan Onyshkevych<br/>66</li> </ul> |
| Multifaceted Domain-Specific Document Embeddings           Julian Risch, Philipp Hager and Ralf Krestel         78   |
| <i>Improving Evidence Retrieval for Automated Explainable Fact-Checking</i><br>Chris Samarinas, Wynne Hsu and Mong Li Lee  |
| Interactive Plot Manipulation using Natural Language<br>Yihan Wang, Yutong Shao and Ndapa Nakashole  |
| ActiveAnno: General-Purpose Document-Level Annotation Tool with Active Learning Integration<br>Max Wiechmann, Seid Muhie Yimam and Chris Biemann   |
| <i>TextEssence: A Tool for Interactive Analysis of Semantic Shifts Between Corpora</i><br>Denis Newman-Griffis, Venkatesh Sivaraman, Adam Perer, Eric Fosler-Lussier and Harry Hochheiser<br>106   |
| Supporting Spanish Writers using Automated Feedback  |

# 

## Alexa Conversations: An Extensible Data-driven Approach for Building Task-oriented Dialogue Systems

Anish Acharya, Suranjit Adhikari, Sanchit Agarwal, Vincent Auvray, Nehal Belgamwar, Arijit Biswas, Shubhra Chandra, Tagyoung Chung, Maryam Fazel-Zarandi, Raefer Gabriel, Shuyang Gao, Rahul Goel, Dilek Hakkani-Tur, Jan Jezabek, Abhay Jha, Jiun-Yu Kao, Prakash Krishnan, Peter Ku, Anuj Goyal, Chien-Wei Lin, Qing Liu, Arindam Mandal, Angeliki Metallinou, Vishal Naik, Yi Pan, Shachi Paul, Vittorio Perera, Abhishek Sethi, Minmin Shen, Nikko Strom and Eddie Wang ....... 125

## RESIN: A Dockerized Schema-Guided Cross-document Cross-lingual Cross-media Information Extraction and Event Tracking System

| MUDES: Multilingual Detection of Offensive Spans |       |
|--|-------|
| Tharindu Ranasinghe and Marcos Zampieri          | . 144 |

# **Conference Program**

Jun 8th, 2021

#### 620pm PST-740pm PST

*PhoNLP: A joint multi-task learning model for Vietnamese part-of-speech tagging, named entity recognition and dependency parsing* Linh The Nguyen and Dat Quoc Nguyen

#### Machine-Assisted Script Curation

Manuel Ciosici, Joseph Cummings, Mitchell DeHaven, Alex Hedges, Yash Kankanampati, Dong-Ho Lee, Ralph Weischedel and Marjorie Freedman

# NAMER: A Node-Based Multitasking Framework for Multi-Hop Knowledge Base Question Answering

Minhao Zhang, Ruoyu Zhang, Lei Zou, Yinnian Lin and Sen Hu

# DiSCoL: Toward Engaging Dialogue Systems through Conversational Line Guided Response Generation

Sarik Ghazarian, Zixi Liu, Tuhin Chakrabarty, Xuezhe Ma, Aram Galstyan and Nanyun Peng

*FITAnnotator: A Flexible and Intelligent Text Annotation System* Yanzeng Li, Bowen Yu, Li Quangang and Tingwen Liu

## Robustness Gym: Unifying the NLP Evaluation Landscape

Karan Goel, Nazneen Fatema Rajani, Jesse Vig, Zachary Taschdjian, Mohit Bansal and Christopher Ré

#### EventPlus: A Temporal Event Understanding Pipeline

Mingyu Derek Ma, Jiao Sun, Mu Yang, Kung-Hsiang Huang, Nuan Wen, Shikhar Singh, Rujun Han and Nanyun Peng

#### 9am PST-1020am PST

# COVID-19 Literature Knowledge Graph Construction and Drug Repurposing Report Generation

Qingyun Wang, Manling Li, Xuan Wang, Nikolaus Parulian, Guangxing Han, Jiawei Ma, Jingxuan Tu, Ying Lin, Ranran Haoran Zhang, Weili Liu, Aabhas Chauhan, Yingjun Guan, Bangzheng Li, Ruisong Li, Xiangchen Song, Yi Fung, Heng Ji, Jiawei Han, Shih-Fu Chang, James Pustejovsky, Jasmine Rah, David Liem, Ahmed ELsayed, Martha Palmer, Clare Voss, Cynthia Schneider and Boyan Onyshkevych

*Multifaceted Domain-Specific Document Embeddings* Julian Risch, Philipp Hager and Ralf Krestel

*Improving Evidence Retrieval for Automated Explainable Fact-Checking* Chris Samarinas, Wynne Hsu and Mong Li Lee

*Interactive Plot Manipulation using Natural Language* Yihan Wang, Yutong Shao and Ndapa Nakashole

ActiveAnno: General-Purpose Document-Level Annotation Tool with Active Learning Integration Max Wischmann, Said Muhia Vimam and Chris Piamann

Max Wiechmann, Seid Muhie Yimam and Chris Biemann

*TextEssence: A Tool for Interactive Analysis of Semantic Shifts Between Corpora* Denis Newman-Griffis, Venkatesh Sivaraman, Adam Perer, Eric Fosler-Lussier and Harry Hochheiser

#### Supporting Spanish Writers using Automated Feedback

Aoife Cahill, James Bruno, James Ramey, Gilmar Ayala Meneses, Ian Blood, Florencia Tolentino, Tamar Lavee and Slava Andreyev

## Alexa Conversations: An Extensible Data-driven Approach for Building Taskoriented Dialogue Systems

Anish Acharya, Suranjit Adhikari, Sanchit Agarwal, Vincent Auvray, Nehal Belgamwar, Arijit Biswas, Shubhra Chandra, Tagyoung Chung, Maryam Fazel-Zarandi, Raefer Gabriel, Shuyang Gao, Rahul Goel, Dilek Hakkani-Tur, Jan Jezabek, Abhay Jha, Jiun-Yu Kao, Prakash Krishnan, Peter Ku, Anuj Goyal, Chien-Wei Lin, Qing Liu, Arindam Mandal, Angeliki Metallinou, Vishal Naik, Yi Pan, Shachi Paul, Vittorio Perera, Abhishek Sethi, Minmin Shen, Nikko Strom and Eddie Wang

## RESIN: A Dockerized Schema-Guided Cross-document Cross-lingual Cross-media Information Extraction and Event Tracking System

Haoyang Wen, Ying Lin, Tuan Lai, Xiaoman Pan, Sha Li, Xudong Lin, Ben Zhou, Manling Li, Haoyu Wang, Hongming Zhang, Xiaodong Yu, Alexander Dong, Zhenhailong Wang, Yi Fung, Piyush Mishra, Qing Lyu, Dídac Surís, Brian Chen, Susan Windisch Brown, Martha Palmer, Chris Callison-Burch, Carl Vondrick, Jiawei Han, Dan Roth, Shih-Fu Chang and Heng Ji

*MUDES: Multilingual Detection of Offensive Spans* Tharindu Ranasinghe and Marcos Zampieri Jun 9th, 2021 (continued)