ClinicalNLP 2023

The 5th Workshop on Clinical Natural Language Processing (ClinicalNLP)

Proceedings of the Workshop

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Preface

This volume contains papers from the 5th Workshop on Clinical Natural Language Processing (Clinical NLP), held at ACL 2023.

Clinical text offers unique challenges that differentiate it not only from open-domain data, but from other types of text in the biomedical domain as well. Notably, clinical text contains a significant number of abbreviations, medical terms, and other clinical jargon. Clinical narratives are characterized by non-standard document structures that are often critical to overall understanding. Narrative provider notes are designed to communicate with other experts while at the same time serving as a legal record. Finally, clinical notes contain sensitive patient-specific information that raise privacy and security concerns that present special challenges for natural language systems. This workshop focuses on the work that develops methods to address the above challenges, with the goal of advancing state-of-the-art in clinical NLP.

ClinicalNLP 2023 also hosted the MEDIQA-Chat 2023 shared tasks that promote research on effective solutions for clinical note generation from medical conversations. The shared tasks focused on the summarization of doctor-patient conversations and on the generation of synthetic dialogues from clinical notes for data augmentation. They introduced new benchmarks for training and evaluation and used an ensemble of evaluation metrics that highly correlate with human judgments. Further, the organizers added a new requirement to submit the code for a second evaluation of the outputs. The MEDIQA-Chat shared tasks attracted 120 registered teams with 17 teams submitting their codes and runs for official participation. The participating teams experimented with the recently released Large Language Models (LLMs) vs. older models and explored data augmentation, fine-tuning, and prompting methods. The results provided new insights on the best approaches and techniques for future research directions in clinical text generation.

This year, we received the total of 82 submissions, inclusive of shared task submissions, from which 58 were accepted for presentation.

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Keynote Talk: Patient record summarization: tasks, approaches, evaluation, and open challenges

Noémie Elhadad
Columbia University

Abstract: The patient record contains an overwhelming large amount of information, too much for a clinician to make sense of it, and yet the information it contains may be critical for clinicians to care for their patients safely and effectively. In this talk, I will review two tasks to alleviate the information overload in clinical care: longitudinal patient record summarization and abstractive brief hospital course summarization. I will describe potential approaches, evaluation objectives, and current open questions. Finally, using the abstractive task of brief hospital course summarization as a grounding example, I will discuss large language models (LLMs) in the context of clinical NLP.

Bio: Noémie Elhadad is Chair of the department of Biomedical Informatics at Columbia University, affiliated with the department of Computer Science and the Data Science Institute. Elhadad's research lies at the intersection of artificial intelligence, human-centered computing, and medicine. She creates novel methods and tools to support patients and clinicians in their information needs, with particular focus on ensuring that the AI systems of the future are robust, safe, fair, and just.

Keynote Talk: The evolution of representations for clinical text and a few more thoughts about generative clinical models

Timothy Miller
Boston Children's Hospital, Harvard Medical School

Abstract: Large language models (LLMs) have excited the broader public like no previous NLP advance. This has led to predictions from all corners about the future of LLM-enabled NLP for clinical data and tasks. In this talk, I review several recent projects from my lab that did not use LLMs, and re-imagine these projects in an LLM-enabled context. The talk then synthesizes the lessons from those projects to propose some guidelines for optimal use of LLMs in clinical NLP research, imagine future directions that are now enabled, and to make some predictions about the future of our field.

Bio: Tim Miller is an Associate Professor in the Computational Health Informatics Program at Boston Children's Hospital, Department of Pediatrics at Harvard Medical School, and at the Harvard-MIT Center for Regulatory Science. He is the PI of the Machine Learning for Medical Language Lab, home of several federally funded projects, including projects focused on basic biomedical NLP research, as well as projects that are driven by biomedical use cases. His research focuses on domain adaptation/generalizability of ML-based NLP methods, as well as methods for learning universal patient representations.

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