Preface: AAAI-HUMAN 2021 Fall Symposium on Human Partnership with Medical AI: Design, Operationalization, and Ethics

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Abstract

The Human Partnership with Medical Artificial Intelligence: Design, Operationalization, and Ethics AAAI symposium was held virtually November 4-6, 2021. The goal of the symposium was to investigate our human relationship and partnership with medical artificial intelligence, especially focusing on challenges in design, operationalization, and ethics.

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Human interaction with artificial intelligence takes many forms; however, the risk tolerance in a medical context is very low. As academics and practitioners at this intersection, in fields such as medicine, engineering, computer science, psychology, and human factors, we each seek to contribute to improved clinical outcomes through intelligent decision support and prediction.

The symposium brought together researchers and clinicians from a variety of AI backgrounds and perspectives. Topics discussed were privacy preservation concerns using the natural language processing Bidirectional Encoder Representations from Transformers (BERT) with clinical data, multimodal explanations for decision support, interpretable models for survival analysis, experts privileged information under uncertainty, challenges to AI in clinical practice, automated medical text translation for different user types, and intelligent tutoring for anatomical education. Keynotes by Dr. Jenna Wiens (University of Michigan) and Dr. Jason Corso (Steven Institute of Technology) presented From Diagnosis to Treatment - Augmenting Clinical Decision Making with Artificial Intelligence, and Video Understanding in the Clinic: Progress and Challenges, respectively. Guest speakers shared their clinical AI experiences in chronic pain, clinician involvement for enhancing trust, and the patient perspective on AI in their healthcare. In addition, round table discussions covered the future of medical AI partnership, enhancing trust in AI, and improving clinical adoption. In addition to the talks, the symposium also ran a rapid modified Delphi to better understand the challenges of medical AI partnership. Two questions were initially asked: 1) What aspects (or characteristics) of AI implementation drive, or help gain, merited trust in clinical adoption?, and 2) How the aspects (characteristics) identified can be operationalized in clinical AI implementation? The responses were discussed with the symposium participants for consensus and then ranked based on complexity and importance. Rankings were presented for further discussion and synthesis of concepts. The outcome is expected to provide the community with insight and research directions with the greatest impact in the pursuit of improving human partnership with medical AI for improved clinical outcomes.

Thomas E. Doyle and Aisling Kelliher served as co-chairs of this symposium. The papers of the symposium were published as a CEUR-WS.org proceedings available through the symposium web site aaai-human.ai.