2022 IEEE Denver EMBS Technical Talk

Cognitive Automation in E-triage, Detection and Diagnosis of Neurological Disorders – A Case Study in Stroke

Stephen T.C. Wong, Ph.D.

The healthcare industry today is under siege to address growing macroeconomic and socioeconomic challenges including high costs and low quality, increasing federal regulations, patient expectations, health inequities, and provider consolidation. Healthcare waste alone constitutes 25-30% or about $1 trillion of the healthcare spending in the United States. To increase efficiency and accessibility, artificial intelligence (AI) has recently been used in automating business, administrative, and operational processes in eliminating mundane, repetitive tasks performed by humans. But can we use AI to address the remaining tasks that involve large amounts of data and require human cognitive capabilities to perform non-routine tasks and enhance human decision-making performance? In this discussion, we will present a use case on investigating, applying, and implementing cognitive automation in e-triage, detection, diagnosis, and post-hospitalization care of Stroke in our health system, involving convergence of multiple AI technologies. We hope to engage a meaningful conversation on the possibility of cognitive automation in medicine. If cognitive automation is successful in medicine, what would be the future role of physicians? What happens to the patient-physician relationship and patient experience?

Stephen T.C. Wong, Ph.D., P.E. (FIEEE, FAMIA, FAIMBE, FAAIA) holds the John S. Dunn Sr. Presidential Chair and is the founding Chair of Systems Medicine and Bioengineering Department, Director of the T.T. & W.F. Chao Center for BRAIN, Director of Translational Biophotonics Laboratory, Chief of Medical Physics, and Associate Director of Cancer Center, Houston Methodist Hospital. He is a Professor of Radiology, Neurosciences, Pathology and Laboratory of Cornell University. Previously, he was a Professor at UCSF and Harvard University, handling major biomedical information and imaging system design and implementation at UCSF, Harvard Medical School and the Brigham and Women's Hospital. Stephen has served in executive roles in major technology-driven companies including HP, Bell Labs, Philips Healthcare where his group implemented the largest radiology information systems in Europe, and Charles Schwab, where his group produced an electronic trading platform. His laboratory investigates molecular mechanisms of cancer and neurological disorders and translates findings into prevention, diagnosis, and treatment. Wong received executive education from Stanford University, MIT, and Columbia University and is a licensed professional engineer (P.E.).

Date | Time: Sep 6, 2022 9 AM – 10 AM, MST (United States)
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