Multimodal AI in Digital Health – Transforming Parkinson's Disease Management

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BMI Classroom 4004
Woodruff Memorial Research Building

or

Join us on Zoom link:
https://zoom.us/j/95189650973

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Abstract: Parkinson's disease (PD), a complex neurodegenerative disorder with a yearly economic burden projected to rise from $57 billion in 2017 to $80 billion by 2037 in the United States, demands innovative approaches to care. Digital health technologies—wearables, smartphones, and sensors—empower patients to monitor their health outside clinics, addressing the global shortage of clinicians.

Multimodal AI enhances this by integrating diverse data sources, such as speech and motor activity, to capture PD's multifaceted symptoms. For instance, tremors may manifest in speech but not in physical movement. A smart multimodal fusion can enable early detection, personalized interventions, and equitable access to care. This talk will highlight cutting-edge multimodal AI research, showcasing its transformative potential for PD and beyond.

Bio: Ehsan Hoque (Ph.D. MIT, 2013) is a Professor of Computer Science at the University of Rochester and co-leads the Rochester Human-Computer Interaction (ROC HCI) Lab. Hoque's research focuses on AI-driven health technologies, human-centered computing, and leveraging AI to improve socio-emotional skills and healthcare interactions. His patented work has been licensed by Microsoft to develop the 'Presenter Coach' feature in Microsoft PowerPoint, which helps millions of users enhance their presentation skills.

Previously, Hoque served as Chief Scientist at the National Center for AI at the Saudi Data and AI Authority (SDAIA), the Ministry for AI and Data in Saudi Arabia, leading initiatives in AI education and health. At the University of Rochester, he helped establish the Morris K. Udall Center for Parkinson's Disease Research with a $9.2M NIH grant. His honors include the MIT Technology Review Innovators Under 35 (TR35) award (2016), NSF CAREER Award (2018), Emerging Leader in Health and Medicine by the National Academy of Medicine (2020-2023), and ACM Ubiquitous and Pervasive Computing 10-Year Impact Award (2023). He is a member of the National Academies Health Sciences Policy board (2023-2025) and was named one of Science News' '10 Scientists to Watch' (2017).