

Natural Language Processing and Clinical Risk Prediction for Populations Experiencing Health Disparities



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Tuesday, September 16, 2025

12:00 – 1:00 PM

BMI Classroom 4004

Woodruff Memorial Research Building

or

Join us on Zoom link:

<https://zoom.us/j/92442386723>



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Biomedical Informatics**
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Abstract: This talk explores how biomedical informatics can be applied to investigate and address health disparities. I will introduce the Morehouse Model 3.0—a framework that combines community engagement, data science, and implementation research to develop culturally responsive, community-centered digital health interventions. The talk will feature two in-depth case studies: one on natural language processing (NLP) for clinical trial recruitment and another on EHR-based heart failure risk prediction, highlighting research and lessons learned in designing, developing, and evaluating AI/ML systems in resource-constrained settings. I will conclude with research areas and projects that I am excited about including LLM-based risk prediction, Small Language Models for health communication, and real-world performance evaluations of algorithms deployed in clinical and community health settings. Finally, I talk will also highlight key ethical considerations and how community partnerships are essential to implementing responsible AI and can help ensure equitable outcomes in health informatics.

Bio: Professor Muhammed Y. Idris, PhD, is an Assistant Professor in the Department of Medicine at Morehouse School of Medicine. He holds postdoctoral fellowships from Concordia University and the Icahn School of Medicine at Mount Sinai. His postgraduate and graduate studies were completed at Pennsylvania State University, and he earned his undergraduate degree from the University of Washington.

In addition to his role as an Assistant Professor, Professor Idris is also a Data Scientist and Co-Investigator for the FIRST Coordination and Evaluation Center at the National Research Mentoring Network. He is also a Founding Co-Director of the Center of Excellence for the Validation of Digital Health Technologies and Clinical Algorithms at Morehouse School of Medicine. The mission of the Research Center on Data Standards for Validation of Health Technologies and Algorithms is to evaluate existing health data standards that drive diagnosis, clinical trial endpoints and population health policy to improve accuracy and health outcomes for Black/African American communities and other communities of color in the United States through associated medical diagnostic tools, algorithms, and AI.

Professor Idris's research interests are diverse and include community-based research, data science and machine learning, human-computer interaction, mHealth, and cardiovascular disease. He has contributed to several significant publications, such as a study on the impact of technology-based interventions for improving self-management behaviors in Black adults with poor cardiovascular health.