Healthcare and Clinical Research in a Data-Driven World

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COE Multipurpose Room

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In this presentation, Dr. Zhang will provide an overview of a range of data science use cases in the health and clinical research setting. In addition, he will focus on a central linkage for human-data interaction: query and exploration tools for accessing data resources. An active research program is to repurpose existing ontologies by transforming them into nested facet systems (NFS) to support human-data interaction. Dr. Zhang will introduce the concept of NFS and outline opportunities involved in using ontologies as NFS for querying and exploring data, especially in the biomedical domain.

BIOGRAPHY

Dr. Zhang is Vice President and Chief Data Scientist for The University of Texas Health Science Center at Houston (UTHealth). He is a Professor in Medicine, Biomedical Informatics and Public Health, and Co-Director, Texas Institute for Restorative Neurotechnologies. Prior to joining UTHealth, he was Professor of Internal Medicine and Computer Science at the University of Kentucky, where he also served as the university's inaugural Director for the Institute for Biomedical Informatics, and Associate Director for the Center for Clinical and Translational Science. His longest career stretch has been spent at Case Western Reserve University, where his role included Division Chief of Medical Informatics, Co-Director of Biomedical Research Information Management Core of the Case Western CTSA, and Associate Director for Case Comprehensive Cancer Center. Dr. Zhang received his PhD from the University of Cambridge. His earlier research interests included theoretical computer science and semantics of programming languages. In the last decade, his research has revolved around Human-Data Interaction (HDI), achieved through the development of innovative software and web-based applications spanning the biomedical data lifecycle. Software tools include query interface for clinical research, data management software for clinical trials and biomedical research, and tools for multi-site data integration. He led the development of data infrastructures and manages data resources, following the vision of NIH Data Commons, for the National Sleep Research Resource and for Center for Sudden Unexpected Death in Epilepsy Research, a largest and comprehensive, well-annotated clinical data sets in the two disease areas. He also has a track record of research in biomedical metadata including ontologies and terminology systems, to bring them to bear on HDI. Dr. Zhang effectively brings cutting-edge computer science and informatics methodology to addressing biomedical data/big data challenges through the translation of theory, algorithms, methods and best practices to functional and usable tools impacting the clinical research data lifecycle.

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