FEBRUARY 20-21, 2025 | HOUSTON, TEXAS

TMC III COLLABORATIVE BUILDING

INFORMATIONAL PACKET

WELCOME TO THE TMC AI SUMMIT 2025

It is our pleasure to host you at the second annual Texas Medical Center (TMC) AI Summit 2025, a flagship event hosted by TMC institutions from February 20-21, 2025, at TMC3 Collaborative Building in Houston, TX!

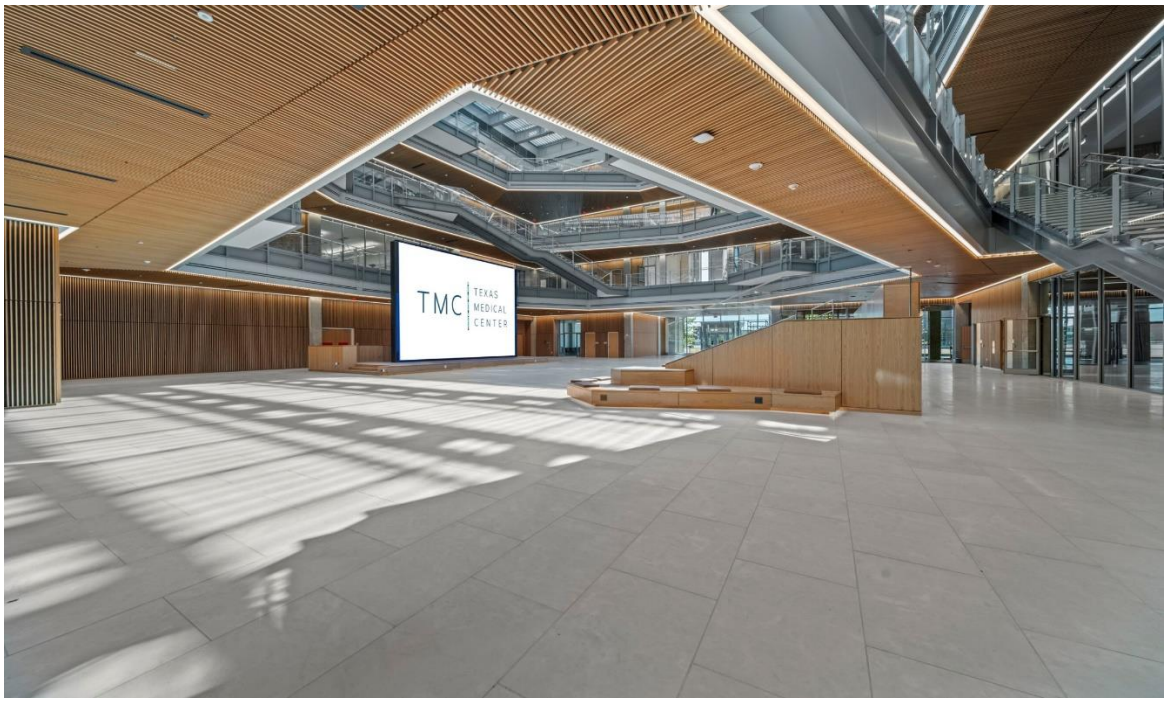
This summit is dedicated to cultivating a vibrant, collaborative ecosystem at the Texas Medical Center by harnessing its world-class talent, diverse data resources, and entrepreneurial spirit. Our goal is to translate cutting-edge AI innovations into actionable solutions for real-world biomedical and healthcare challenges. By bringing together researchers, clinicians, and industry leaders, we aim to revolutionize healthcare delivery, enhance outcomes, and drive impactful, global change.

Questions? On the following pages, you will find important information about the conference. If you require any assistance at any time, please do not hesitate to contact Rubab Ali via email rubab.f.ali@uth.tmc.edu or Carina Wang at via email at wanjing.wang@uth.tmc.edu.

Emergency information is available at https://www.tmc.edu/operations/tmc-police/

Please find parking instruction on the last page.

ONSITE CHECK-IN



Onsite Registration will occur in the TMC3 Collaborative Building on the first floor as soon as you are off of the elevators. Our volunteers will be stationed to assist you with the registration process.

Registration will begin at 11:00am on February 20th. Please plan to arrive at the TMC3 Collaborative Building early to allow ample time for registration. This will ensure that we are able to kick off the TMC AI Summit on time.

Meals Included: All meals will be catered and served in the main hall on the first floor. There will also be refreshments and coffee breaks to keep you energized throughout the event.

SECOND ANNUAL

TMC AI SUMMIT

FEBRUARY 2025 | TMC3 COLLABORATIVE BUILDING

DAY ONE
FEB 20, 2025

11:00-17:00 REGISTRATION

13:00-16:30 WORKSHOPS/TUTORIALS

State of the TMC AI Community | **Main Hall**

Perioperative Surveillance for Operational Excellence, Current practices and Future Directions | **James P. Allison Hall (Room 4520)**

Advancing Healthcare with Digital Pathology and Artificial Intelligence | **Braeswood Hall (Room 413)**

From Blueprint to Bot: Streamlining Workflows with AI | **Herman Hall (Room 217)**

Seizing the Moment: Building an AI Center at Texas Medical Center to Lead Global Healthcare Innovation | **Levy Hall (Room 203)**

14:30-15:00 COFFEE BREAK

16:30-18:30 RECEPTION AND POSTERS

16:30 Sponsor Talk - **Healthconnect Texas**

RSVP TO SAVE YOUR SPOT TODAY!

GO.UTH.EDU/TMCAISUMMIT

DAY TWO
FEB 21, 2025

8:00- 8:10 OPENING REMARKS

8:10-10:10 FOUNDATION TRACK

Multimodal Generative AI for Precision Health - **Hoifung Poon | Microsoft**

Exploring Biological Complexity with Gene and Cell Embedding approaches - **Vicky Yao | Rice University**

TMC Research Spotlight

Foundation Track Panel

10:10-10:30 COFFEE BREAK

10:30-12:30 OPPORTUNITIES TRACK

AI-Driven 3D and 4D Molecular Modeling: Innovations Shaping the Future of Patient-Centered Precision Medicine - **Tae Hyun Hwang | Vanderbilt University**

Transforming Stroke Care with AI Technologies - **Sean Savitz | UTHealth Houston**

TMC Research Spotlight

Opportunity Track Panel

12:30-14:00 LUNCH/SHOWCASE

12:30 Sponsor Talk - **Nucleati - Adenine AI: Augmenting Genetic Insights with AI-Powered Evidence Collection, Curation, and Organization.**

13:00 Student Research Showcase - **Sunyang Fu | UTHealth Houston**

14:00-14:30 COFFEE BREAK

14:30-16:30 IMPACT TRACK

Seven Challenges When Implementing Prognostic Models at an Academic Medical Center - **Khaled El Emam | University of Ottawa**

Artificial Intelligence, Workforce Development, and Data Infrastructure Capacity Building - **Toufeeq Syed | UTHealth Houston**

TMC Research Spotlight

Impact Track Panel

16:30-16:45 CLOSING REMARKS

SECOND ANNUAL

TMC AI SUMMIT

FEBRUARY 2025 | TMC3 COLLABORATIVE BUILDING

DAY ONE | FEBRUARY 20, 2025

13:00-13:05 **OPENING REMARKS | MAIN HALL**

13:00-16:30 **STATE OF THE TMC AI COMMUNITY | MAIN HALL**

13:05 - **Ashok Kurian** | Texas Children's Hospital
13:30 - **Stephen Wong** | Houston Methodist
14:00 - **Shawn Stapleton** | UT MD Anderson Cancer Center
15:00 - **GQ Zhang** | UTHealth Houston
15:30 - **Marino Bruce** | University of Houston
16:00 - **Todd Treangen** | Rice University

13:00-16:30 **WORKSHOPS/TUTORIALS**

Perioperative Surveillance for Operational Excellence, Current practices and Future Directions | **James P. Allison Hall (Room 4520)**
Daniel I. Sessler | UTHealth Houston
Nassib Chamoun | Health Data Analytics Institute
Yandong Jiang | UTHealth Houston
Garry Brydges | UT MD Anderson Cancer Center
Xiaoyang Ruan | UTHealth Houston

Advancing Healthcare with Digital Pathology and Artificial Intelligence | **Braeswood Hall (Room 413)**
Guanghua Xiao | UT Southwestern Medical Center
Quincy Gu | University of Pittsburgh
Jun Jiang | UTHealth Houston
Xiaoxi Pan | UT MD Anderson Cancer Center

From Blueprint to Bot: Streamlining Workflows with AI | **Herman Hall (Room 217)**
Sibel Emekli | UTHealth Houston

Seizing the Moment: Building an AI Center at Texas Medical Center to Lead Global Healthcare Innovation | **Levy Hall (Room 203)**
Uwe Fischer | UTHealth Houston

14:30-15:00 **COFFEE BREAK**

16:30-18:30 **RECEPTION AND POSTERS**

16:30 Sponsor Talk - **Healthconnect Texas**

SECOND ANNUAL

TMC AI SUMMIT

FEBRUARY 2025 | TMC3 COLLABORATIVE BUILDING

DAY TWO | FEBRUARY 21, 2025

8:00-8:10 **OPENING REMARKS | MAIN HALL**

8:10-10:10 **FOUNDATION TRACK | MAIN HALL**

Multimodal Generative AI for Precision Health - **Hoifung Poon** | **Microsoft**

Exploring Biological Complexity with Gene and Cell Embedding Approaches - **Vicky Yao** | **Rice University**

TMC Research Spotlight

Foundation Track Panel

10:10-10:30 **COFFEE BREAK**

10:30-12:30 **OPPURTUNTIES TRACK | MAIN HALL**

AI-Driven 3D and 4D Molecular Modeling: Innovations Shaping the Future of Patient-Centered Precision Medicine - **Tae Hyun Hwang** | **Vanderbilt University**

Transforming Stroke Care with AI Technologies - **Sean Savitz** | **UTHealth Houston**

TMC Research Spotlight

Opportunity Track Panel

12:30-14:00 **LUNCH/SHOWCASE | MAIN HALL**

12:30 Sponsor Talk - **Nucleati**
- **Adenine AI: Augmenting Genetic Insights with AI-Powered Evidence Collection, Curation, and Organization.**

13:00 Student Research Showcase - **Sunyang Fu** | **UTHealth Houston**

14:00-14:30 **COFFEE BREAK**

14:30-16:30 **IMPACT TRACK | MAIN HALL**

Seven Challenges When Implementing Prognostic Models at an Academic Medical Center - **Khaled El Emam** | **University of Ottawa**

Artificial Intelligence, Workforce Development, and Data Infrastructure Capacity Building - **Toufeeq Syed** | **UTHealth Houston**

TMC Research Spotlight

Impact Track Panel

16:30-16:45 **CLOSING REMARKS | MAIN HALL**

FOR MORE INFROMATION, PLEASE VISIT OUR WEBSITE TMC-AI-SUMMIT.ORG

OUR SPONSORS

PLATINUM

HEALTHCONNECT · TX

Healthconnect Texas

Vision: To operate a sustainable health information exchange that coordinates care for the community, improves overall population health, enhances health and wellness initiatives, reduces healthcare costs, and advances opportunities for long-term research and disease prevention.

"Connecting for a Healthier Texas"

OUR SPONSORS

PLATINUM

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Nucleati

Vision: Empower healthcare applications with AI-driven genetics and genomics.

Mission: Bridge the gap between genetics and healthcare, driving advancements that make a tangible difference in clinical and research settings.

Nucleati specializes in leveraging artificial intelligence to streamline genetic evidence curation and variant classification.

Product: Adenine.ai .

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TEKsystems Global Services

TEKsystems

TEKsystems partners with leading healthcare organizations to accelerate digital transformation and optimize clinical outcomes through agile technology solutions. Our focus on data modernization, advanced analytics, and AI/ML helps create more efficient, patient-centered healthcare ecosystems.

- Empower healthcare outcomes with advanced analytics, AI/ML, and cloud-based infrastructure
- Streamline EMR and clinical data integration to enhance patient care
- Accelerate digital transformation with deep healthcare-IT expertise

OUR SPONSORS

GOLD

Audubon
HEALTH GROUP

Audubon Health Group

Audubon Health Group builds a collaborative network of cancer research scientists, organizations and biobanks to accelerate discoveries of new biomarkers and treatments using AI/ML tools.

Our current focus is on expanding access to patient biospecimens, improving clinical and genomic data accumulation, and broadening usage of AI/ML tools for advanced genomic analysis.

We suggest our Mars Shot approach. The key pillars of such a program should be genuine collaboration, true efficiency and international engagement.

CANCER MARS SHOT
Fighting Cancer Together

OUR SPONSORS

GOLD

UTHealth Houston | McWilliams School of Biomedical Informatics

UTHealth Houston

McWilliams School of Biomedical Informatics is Transforming Data to Power Human Health.

- Collect, process, and convert data into actionable information, knowledge, and intelligence
- Educate current and future leaders, innovators, and problem solvers across Texas, the nation, and the world
- Disrupt, transform, and innovate to elicit biomedical discoveries, improve healthcare delivery, and aid in disease prevention by conducting outstanding basic and applied research and developing impactful information technology products and solutions

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VISIOPHARM®

VisioPharm

Visiopharm is the leader in AI-driven precision pathology software for research and diagnostics. Since 2001, its global footprint has grown by providing comprehensive tools for advanced tissue analysis.

Visiopharm's platform supports biomarker discovery, drug development, and routine pathology, enabling laboratories and research institutions worldwide to generate precise, reproducible data for better decision-making in life sciences and healthcare.

MEET THE FOUNDATION TRACK KEYNOTES

8:10 | Feb 21, 2025

Main Hall

Topic: Multimodal Generative AI for Precision Health

Hoifung Poon | Microsoft

Dr. Hoifung Poon is the General Manager at Health Futures in Microsoft Research and an affiliated faculty at the University of Washington Medical School. He leads biomedical AI research and incubation, with the overarching goal of structuring medical data to optimize delivery and accelerate discovery for precision health. His team and collaborators are among the first to explore large language models (LLMs) and multimodal generative AI in health applications, producing popular open-source foundation models such as PubMedBERT, BioGPT, BiomedCLIP, LLaVA-Med, BiomedParse, with tens of millions of downloads. His latest publication in Nature features GigaPath, the first whole-slide digital pathology foundation model pretrained on over one billion pathology image tiles. He has led successful research partnerships with large health providers and life science companies, creating AI systems in daily use for applications such as molecular tumor board and clinical trial matching. He has given tutorials on these topics at top AI conferences such as ACL, AAAI, and KDD, and his prior work has been recognized with Best Paper Awards from premier AI venues such as NAACL, EMNLP, and UAI. He received his PhD in Computer Science and Engineering from the University of Washington, specializing in machine learning and NLP.

8:40 | Feb 21, 2025

Main Hall

Topic: Exploring Biological Complexity with Gene and Cell Embedding approaches

Vicky Yao | **Rice University**

Dr. Vicky Yao is an Assistant Professor in the Department of Computer Science at Rice University. She was a postdoctoral fellow at the Lewis-Sigler Institute for Integrative Genomics and received her PhD from the Department of Computer Science at Princeton University. Her research focus is in computational biology, with a particular interest in developing statistical and machine learning approaches to model the underlying molecular processes of disease through large scale integration of high-throughput -omics data. She is a CPRIT Scholar and a recipient of the NSF CAREER Award.

MEET THE OPPORTUNITIES TRACK KEYNOTES

10:10 | Feb 21, 2025

Main Hall

Topic: AI-Driven 3D and 4D Molecular Modeling: Innovations Shaping the Future of Patient-Centered Precision Medicine

Tae Hyun Hwang | Vanderbilt University

Dr. Tae Hyun Hwang is an internationally recognized leader in artificial intelligence and molecular biology. He serves as the Founding Director and Endowed Chair of the Center for Molecular AI at Vanderbilt University Medical Center and Vanderbilt University, the first clinical-based molecular AI program globally. Dr. Hwang co-led the Human Tumor Atlas Network project, advancing the understanding of tumor ecosystems through AI-driven 3D and temporal molecular profiling. His current work is supported by various extramural and foundation funds, including grants from the National Cancer Institute (NCI), Department of Defense (DoD), American Association for Cancer Research (AACR), and the Eric and Wendy Schmidt Foundation. Dr. Hwang's research integrates AI-driven computational approaches with experimental methodologies to uncover the mechanisms of disease and translate discoveries into actionable solutions for patient care. His work bridges computational biology, AI, and translational research, addressing complex biological systems to advance precision medicine and deliver tangible benefits to clinical practice.

11:00 | Feb 21, 2025

Main Hall

Topic: Transforming Stroke Care with AI Technologies

Sean Savitz | **UTHealth Houston**

Dr. Sean I. Savitz is a Professor of Neurology and Physical Medicine and Rehabilitation, the Frank M. Yatsu Chair, and Director of the Institute for Stroke and Cerebrovascular Disease at the University of Texas Health Science Center in Houston (UTHealth). He graduated from Harvard College, received his MD from Albert Einstein College of Medicine, and completed neurology residency training and a cerebrovascular fellowship at the Harvard Medical School Neurology Training Program. With over 40 participating faculty, the UTHealth Stroke Institute's mission is to develop novel treatments and health care delivery models for patients with ischemic stroke and brain hemorrhage. He has 10 years' experience leading comprehensive stroke centers of care and served as medical director for the first certified integrated system of stroke centers in the US. Dr. Savitz's research focuses on stroke recovery, rehabilitation, and the application of stem cells as an innovative treatment for stroke. He also oversees an NIH funded fellowship program to train stroke specialists and has won several teaching awards in Boston and Houston. He has been funded by grants from the National Institute of Health, the Howard Hughes Medical Institute, and the American Heart Association, and is an author of over 300 publications in the biomedical literature.

MEET THE IMPACT TRACK KEYNOTES

14:30 | Feb 21, 2025

Main Hall

Topic: Seven Challenges When Implementing Prognostic Models at an Academic Medical Center

Khaled El Emam | University of Ottawa

Dr. Khaled El Emam, Canada Research Chair (Tier 1) in Medical AI at the University of Ottawa, is a trailblazer in advancing privacy-enhancing technologies to enable secure health data sharing. As a Professor in the School of Epidemiology and Public Health and Senior Scientist at the Children's Hospital of Eastern Ontario Research Institute, he leads innovative research in synthetic data generation and de-identification methods through the Electronic Health Information Laboratory. Dr. El Emam is also the co-founder and CEO of Replica Analytics, a company revolutionizing data utilization with cutting-edge synthetic data solutions and has successfully founded six companies specializing in data management and analytics. A globally recognized scholar, he was twice ranked the world's top systems and software engineering researcher and has held prestigious research roles across Canada and Europe. With a PhD from King's College London, Dr. El Emam's work sits at the intersection of AI and healthcare, offering transformative insights for the future of secure, data-driven innovation.

15:00 | Feb 21, 2025

Main Hall

Topic: Artificial Intelligence, Workforce Development, and Data Infrastructure Capacity Building

Toufeeq Syed | **UTHealth Houston**

Dr. Toufeeq Syed is an Associate Professor and Assistant Dean of Education Informatics at the McWilliams School of Biomedical Informatics and an Associate Professor at McGovern Medical School, The University of Texas Health Science Center at Houston. In January 2025, the US White House awarded the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM) for Dr. Syed's leadership with the National Research Mentoring Network. As Co-lead for the National Research Mentoring Network (NRMN), Dr. Syed designed and developed MyNRMN (https://my.nrmnet.net), a powerful mentoring platform to support faculty, students, mentors, and mentees in increasing workforce development Dr. Syed serves as one of the Principal investigators of the NIH-funded AIM-AHEAD program and leads AI workforce development efforts to increase data infrastructure capacity for AI. For this project, he has developed an online national learning platform, AIM- AHEAD Connect (https://connect.aim-ahead.net), to support online Open Data Science and AI courses, learners and students, and AI experts to network/mentor, online collaborations, projects, and helpdesk. The AIM-AHEAD Connect platform has more than 6,800 AI/ML experts, researchers, and trainees nationwide.

MEET THE STATE OF THE TMC AI COMMUNITY

13:00 - 16:30 | Feb 20, 2025

Main Hall

13:05 - Ashok Kurian | Texas Children's Hospital

Dr. Ashok Kurian is an accomplished leader in the data & analytics space, with over 25 years of experience in data & analytics strategy and advancing maturity. Prior to Texas Children's, Ashok was a senior leader in IBM's North America analytics practice, enabling analytics strategy in numerous organizations globally. His areas of expertise are data engineering, data governance, data science, integration and leading large scale systems and deployments. Notable achievements in Ashok's tenure as Assistant Vice President at Texas Children's include facilitating advancement in the AI program at, establishing operational and clinical machine learning use cases starting in 2016 and he currently chairs the AI Governance and Guidance committee for the institution. Under his tenure, Texas Children's Achieved the Healthcare Information and Management Systems Society (HIMSS) Analytics Maturity Assessment Model (AMAM) stage 7 designation. In addition to his responsibilities around institutional AI, Ashok serves as the leader responsible for Digital Solutions and Innovation at Texas Children's. Ashok graduated with a Bachelor's and Master's degree in data and information management from Texas A&M University – College Station, TX and is a member of College of Healthcare Information Management Executives (CHIME) as well as the Health Information and Management Systems Society (HIMSS).

13:30 - Stephen Wong | Houston Methodist

Dr. Stephen Wong, John S. Dunn Presidential Distinguished Chair and Professor at Houston Methodist and Cornell University, and Director of the T.T. & W.F. Chao Center for BRAIN, formerly held faculty positions at Harvard, UCSF, and UC Berkeley. His lab integrates engineering, biology, and physics to advance diagnosis and treatment. He contributed to the development of the first VLSI MB memory chips (Bell Labs), the first thermal inkjet printer, ThinkJet (HP), and the first massive parallel deductive database management system (Japan MITI ICOT). He co-developed the first hospital-wide PACS (UCSF), revolutionizing radiology, and led the development of the largest radiology information system in Europe (Philips) and the largest online financial trading platform (Charles Schwab). At Harvard Medical School, he founded the Bioinformatics Center for Neurodegeneration Research, pioneering systems biology and machine learning for drug discovery, and established Brigham and Women's Hospital's first cyclotron and translational imaging facilities. A Life Fellow of IEEE and a Fellow of AIMBE, IAMBE, ACMI, AMIA, Optica, and AAIA, Dr. Wong has mentored over 170 graduate students and postdocs, with four attaining endowed professorships and nine advancing to clinical department chair or section chief positions.

14:00 - Shawn Stapleton | UT MD Anderson Cancer Center

Dr. Shawn Stapleton is the Director of AI Lifecycle Management at MD Anderson, bringing over 20 years of academic and industry experience in radiology, oncology, and healthcare informatics. In this role, he leads the operationalization, validation, and maintenance of enterprise AI solutions across the institution, ensuring they are safe and achieve sustainable impact. Prior to joining MD Anderson, Dr. Stapleton spent almost a decade in industry guiding AI innovations from research through product de-risking and development at both Optum and Philips Healthcare. He earned his PhD at the University of Toronto, where he developed computational models to predict nanomedicine transport in solid tumors, followed by a postdoctoral fellowship at Mass General Hospital and Harvard Medical School focused on multiscale imaging and modeling of anti-cancer drug delivery.

15:00 - GQ Zhang | UTHealth Houston

Dr. GQ Zhang is Professor in the Department of Neurology and Distinguished Chair in Digital Innovation at McGovern Medical School, the University of Texas Health Science Center at Houston (UTHealth). He co-directs the Texas Institute for Restorative Neurotechnologies and serve as UTHealth's Chief Data Scientist. Before joining UTHealth, Dr. Zhang served as the Director of the Institute for Biomedical Informatics, Chief of the Division of Biomedical Informatics, and Associate Director of the Center for Clinical and Translational Science (CCTS) at the University of Kentucky. He spent 15 years as faculty of Case Western School of Engineering, Department of Computer Science, and later as faculty of School of Medicine, Case Western Reserve University (CWRU). At CWRU, Dr. Zhang served as Co-Director of the Informatics Core for the Clinical and Translational Science Collaborative, Associate Director for Cancer Informatics at the Case Comprehensive Cancer Center and created the Division of Biomedical Informatics in the Medical School. Dr. Zhang's research focus spans large-scale, multi-center data integration, biomedical ontology development, user interface design and information retrieval, and agile, interface-driven access-control-grounded software development. During the last decade, he led a research group that has developed production-strength, actively used informatics tools for data capturing, data management, cohort discovery, and clinical decision support. He led the development and sharing of national data resources following the FAIR data principles, serving as the data science PI of the National Research Resource. The NSRR has been selected by NIH as one of the standard data sharing platforms for NHLBI. Dr. Zhang has been the PI for the Informatics and Data Analytics Core for the NINDS-funded Center for SUDEP Research, a 14-institute collaboration to prospectively recruit, collect and manage epilepsy patient data, integrating clinical information with their physiological signals, neuroimaging, genomic and blood chemistry data to accelerate SUDEP research. He led the development and operation of bespoke EHR systems such as EpiTOME, epilepsy tracking and optimized management engine. Dr. Zhang's research has been funded by NINDS, NCI, NHLBI, NIMH and NSF, with the most recent ones as PI for NINDS R01 titled "Neurophysiological AI-Ready Data Resource" and data ecosystem for the NIH BRAIN initiative: "Engagement outreach for a FAIR BICAN Data Ecosystem."

15:30 - Marino Bruce | University of Houston

Dr. Marino A. Bruce, PhD, MSRC, MDiv is a Clinical Professor of Behavioral and Social Sciences and the Associate Dean for Research and in the University of Houston Fertitta Family College of Medicine. He is the Founding Director of UHPH Collaboratories –synergistic interdisciplinary research and training units within UH Population Health, where he leads the co-leads the Men's Health and Research Training Education and Mentoring Collaboratories. Dr. Bruce is also Co-Leader of the South-Central Hub for the AIM-AHEAD Consortium. Dr. Bruce is a sociologist and population health scientist who examines the full range of factors, including faith, religion, and spirituality, that influence cognitive and physical functioning among Black males over the life course and across generations. His work has been funded by the National Heart Lung and Blood Institute and the National Institute on Aging and published in leading journals in aging, medicine, public health, men's health, and health disparities. Dr. Bruce is the current editor of *Research on Race and Ethnic Relations*, current associate editor of *Ethnicity and Disease*, and co-editor of two recent books, *Men's Health Equity* and *Racism: Science and Tools for the Public Health Professional*. His work has also been featured on several global media outlets including *USA Today*, *The Today Show*, *US News and World Report*, and *Time Magazine*. Dr. Bruce earned a bachelor's degree in Economics from Davidson College and master's degrees in Rural Sociology, Divinity, and Rehabilitation Counseling from North Carolina State University, Piedmont Theological Seminary, and Winston Salem State University, respectively. He earned a PhD in Sociology from North Carolina State University and received postdoctoral training in Family Medicine from the University of Wisconsin-Madison and in Biobehavioral Health from Duke University.

16:00 - Todd Treangen | Rice University

Dr. Todd J. Treangen is an Associate Professor of Computer Science at Rice University, affiliated faculty member in the Department of Bioengineering, and the AI and Computational Biology for Health Cluster lead at the Ken Kennedy Institute (https://kenkennedy.rice.edu/ai-and-computational-biology-for-health). He also leads the VIP Genome Sleuths program at Rice (https://ouri.rice.edu/genome-sleuths), a program dedicated to providing research opportunities to Rice undergraduate students via vertically integrated projects (VIP). Dr. Treangen's research group at Rice is focused on developing computational approaches and open-source software tools to address unsolved challenges in the areas of biosecurity, pathogen genomics, and clinical metagenomics. Dr. Treangen received a NSF CAREER award in 2023 focused on building a computational platform for detecting previously unseen microbial pathogens. Dr. Treangen also received the Rice School of Engineering and Computing Research and Teaching Excellence Award in 2024.

MEET THE WORKSHOPS PRESENTERS

13:00 - 16:30 | Feb 20, 2025

James P. Allison Hall | Room 4520

Topic: Perioperative Surveillance for Operational Excellence, Current practices and Future Directions

Moderated by Dr. Xiaoyang Ruan | UTHealth Houston

Dr. Xiaoyang Ruan is an Assistant Professor at McWilliams School of Biomedical Informatics, and a member of the Center for Translational AI Excellence and Applications in Medicine (TEAM-AI), led by Dr. Hongfang Liu. Dr. Ruan possesses a diverse educational background encompassing biopharmacy, genetic epidemiology, and bioinformatics. His professional journey includes valuable experience in both the academic healthcare sector and the pharmaceutical industry. Dr. Ruan's current research focus is real-world data base deep learning architectures for real-time risk modeling, and deep phenotyping based precise medicine. His work on chronic kidney disease endpoint risk modeling led to the first deep learning model capable of individualized dynamic risk modeling across diverse prediction horizon. Dr. Ruan believes in the power of teamwork in bringing safe and reliable AI to benefit the healthcare field in the era of digital transformation, recognizing that collaboration among multidisciplinary experts is key to overcoming the complex challenges at the intersection of technology and healthcare.

Daniel I. Sessler | UTHealth Houston

Dr. Daniel Sessler attended medical school at Columbia University, and subsequently completed pediatric and anesthesia residencies at the University of California, Los Angeles. He is currently Vice-president for Clinical Research at UTHealth in Houston. Dr. Sessler has published more than 1,000 full papers including three-dozen in the New England Journal of Medicine, Lancet, and JAMA. More than 145 of his papers were accompanied by editorials, and more than 30 were cover articles for major anesthesia journals since 2010. His papers have been cited 70,000 times in peer-reviewed articles per Scopus — making him the world's most published and cited perioperative investigator (H Index 126). He is among the top 0.01% of cited scientists in any field. He has given more than 500 invited presentations, including more than two-dozen eponymous lectures. Dr. Sessler has been a principal or co-investigator on grants totaling $100 million. He founded and directs the Outcomes Research Consortium. The Consortium is the world's largest anesthesia research group; it publishes a full paper every other day, for a total of more than 2,000 papers.

Nassib Chamoun | Health Data Analytics Institute

Nassib Chamoun is the founder and CEO of Boston-based Health Data Analytics Institute (HDAI), the first intelligent health management system company, bringing real-time, actionable insights through a hybrid AI platform that combines the best of LLM and GPT with traditional, task-specific AI tools, deployed at scale across healthcare enterprises. Chamoun is a serial healthcare entrepreneur, thought leader, researcher, and inventor who, as founder and CEO of Aspect Medical Systems, developed and commercialized the AI-based brain monitoring BIS™ technology, a global standard for anesthetic effect monitoring. Chamoun earned his Bachelor of Science in Electrical Engineering from Northeastern University and his Master of Science in Computer Engineering from Boston University. He has served on numerous non-profit boards and including 12 years as Chair of the Lown Institute and is currently a trustee for Beth Israel Deaconess Hospital Needham and serves on the Beth Israel Lahey Health Patient Experience and Care Assessment Committee.

Yandong Jiang | UTHealth Houston

Dr. Yandong Jiang graduated from Qingdao Medical College, received a PhD from the Ohio State University in Medical Biochemistry, and completed post-doctor training at Harvard Medical School for two years and anesthesia residence at Harvard Medical School. He worked at Massachusetts General Hospital/Harvard Medical School for 13 years, was promoted to associate professor in 2014, was a founding chair of the clinical research advisory committee, the Department of Anesthesia at Massachusetts General Hospital, and won the Beecher Teaching Award three times. He was a founding member of the Society of Anesthesia and Sleep Medicine. He worked as a professor at Vanderbilt University for three years and then as a professor and past vice chair of clinical research at the University of Texas, Health Science Center at Houston. He has been a Handling editor of Anesthesiology since 2019. He published 80 peer-reviewed articles and holds 16 patents. His research interests are outcome research and AI application in perioperative medicine.

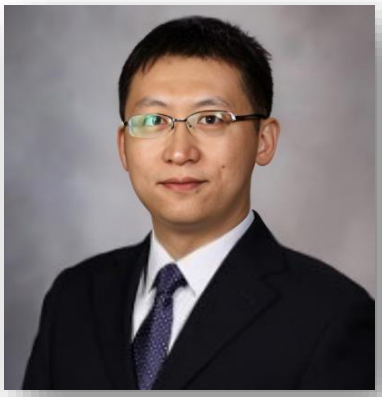
Garry Brydges | National Board of Certification and Recertification for Nurse Anesthetists

Dr. Garry Brydges, PhD, DNP, BScN, MBA, MHA, APRN, CRNA, ACNP-BC, FAANA, FAAN is the UT MD Anderson Cancer Center Division of Anesthesia, Critical Care, & Pain Medicine Director of Quality and Outcomes, where he is incorporating machine learning and neural network algorithms into a Perioperative Outcomes Group Conceptual Framework to predict oncologic patient outcomes and fiscal implications. In his clinical role, he provides anesthesia services for complex oncologic procedures across the lifespan. He is adjunct faculty at the University of Texas Health Science Center Houston Nurse Anesthesia Program, Baylor College of Medicine Nurse Anesthesia Program, Texas Woman's University Nursing Graduate Programs, and adjunct professor at Case Western Reserve University - Shaughnessy Nurse Leadership Academy. He teaches across numerous dimensions of nursing, including clinical anesthesia, quality improvement, healthcare economics, healthcare policy, governance and leadership, and global healthcare.

MEET THE WORKSHOPS PRESENTERS

13:00 - 16:30 | Feb 20, 2025

Braeswood Hall | Room 413



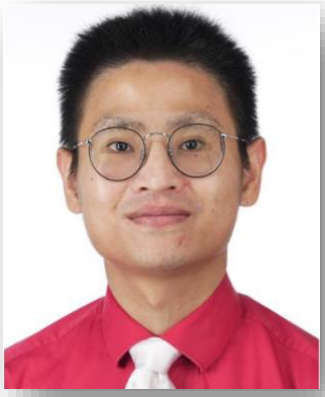
Topic: Advancing Healthcare with Digital Pathology and Artificial Intelligence

Moderated by Dr. Jun Jiang | UTHealth Houston

Dr. Jun Jiang joined McWilliams School of Biomedical Informatics at UTHealth Houston as an Assistant Professor in Dec. 2024. His research mainly focused on developing models and leveraging AI tools for biomedical image analysis. With a particular focus on advancing histopathology image characterization through computational and data-driven techniques, his long-term goal is to combine diverse data sources to create AI models that enable more accurate disease diagnosis and personalized treatment predictions.

Guanghua Xiao | UT Southwestern Medical Center

Dr. Guanghua Xiao is a Professor at the O'Donnell School of Public Health and has secondary appointments in the Departments of Bioinformatics and Biomedical Engineering at UT Southwestern Medical Center. He holds the Mary Dees McDermott Hicks Chair in Medical Science and leads the Health Data Sciences Ph.D. program at the school. With a focus on machine learning, spatial statistics, and high-dimensional data analysis, Dr. Xiao and his team have developed user-friendly software and tools for genomic and imaging data analysis. His current research includes AI methods for pathology imaging analysis and bioinformatics tools for spatial molecular profiling.



Quincy Gu | University of Pittsburgh

Dr. Quincy Gu serves as an Assistant Professor in the Department of Pathology at the University of Pittsburgh School of Medicine (UPSOM) and holds the position of Interim Associate Director of R&D at UPSOM's Computational Pathology & AI Center of Excellence (CPACE). His academic foundation includes a Ph.D. in bioinformatics and computational biology, completed through a joint program between the Mayo Clinic and the University of Minnesota. Following his doctoral studies, Dr. Gu spent nearly three years advancing computational pathology research at Roche. At UPSOM, his research focuses on pioneering developments in computational pathology AI, with particular emphasis on multimodality learning and applications of generative AI in computational pathology.

Xiaoxi Pan | UT MD Anderson Cancer Center

Dr. Xiaoxi Pan, a principal data scientist at MD Anderson Cancer Center, now works with Dr. Yinyin Yuan's team, focusing on computational pathology. She worked as a postdoctoral fellow from 2020 to 2023 at the Institute of Cancer Research in UK and an instructor in from 2023 to 2024 at MD Anderson. Before, she received a Ph.D. degree in Image Processing from Ecole Centrale Marseille in France in 2020. Her research concentrates on leveraging artificial intelligence algorithms in cancer research, including developing models for large-scale datasets, discovering image-derived biomarkers for prognosis and therapeutics, and integrating multi-omics data. She has authored or co-authored over 10 peer-reviewed articles in high-profile journals and conference proceedings, including Nature Cancer, IEEE Transactions on Medical Imaging, MICCAI and MIDL. Dr. Pan aims to streamline the computational pathology analysis for large-scale data, ensuring the reliability and reproducibility for downstream applications such as image biomarker discovery and omics data integration, with the ultimate goal of unraveling tumor heterogeneity.

MEET THE WORKSHOPS PRESENTER

13:00 - 16:30 | Feb 20, 2025

Herman Hall | Room 217

Topic: From Blueprint to Bot: Streamlining Workflows with AI

Sibel Emekli | **UTHealth Houston**

Sibel Emekli, BBA, is a Marketing and Generative AI Assistant at McWilliams School of Biomedical Informatics at UTHealth Houston, where she utilizes Gen AI powered tools to streamline workflows. She builds and optimizes GPTs for staff and students, enhances marketing campaigns with Gen AI content, and automates tedious tasks to improve efficiency. She has presented at UTHealth Houston's 2024 Creative Show & Tell and the 2024 MSBMI Career Fair, sharing insights on her resume-revisor bot and creative content generation skills.

MEET THE WORKSHOPS PRESENTER

13:00 - 16:30 | Feb 20, 2025

Levy Hall | Room 203

Topic: Seizing the Moment: Building an AI Center at Texas Medical Center to Lead Global Healthcare Innovation

Uwe Fischer | **UTHealth Houston**

Dr. Uwe Fischer, MD, PhD is an Assistant Professor of Surgery at Yale School of Medicine specializing in vascular surgery, and he is Adjunct Assistant Professor at the Department of Surgery, McGovern School of Medicine, UTHealth, Houston. He earned his MD and PhD from Johannes Gutenberg-University of Mainz and has furthered his training with advanced coursework in healthcare management at Yale and Cornell, as well as in Artificial Intelligence in Health Care at MIT and Harvard. Dr. Fischer's work blends traditional surgical practice with a practical interest in using AI to improve vascular diagnostics and treatment outcomes. He has shared his insights on AI's role in vascular care through invited talks and publications, including a recent book chapter on the subject. In addition to his clinical and research activities, he is involved in mentoring medical students, helping them explore how AI can be integrated into everyday medical practice.

TMC RESEARCH SPOTLIGHTS

Feb 21, 2025 | Main Hall

Foundation Track:

- **9:00 Lukas Simon | Baylor College of Medicine**
  - Bio-primed machine learning to enhance discovery of relevant biomarkers
- **9:06 Juliana Yue | Baylor College of Medicine**
  - Advancing CRISPR-Cas9 Research With AI: Developing Deep Learning Models for CRISPR-Cas9 Gene Editing
- **9:12 Meng Li | Rice University**
  - Bridging Echocardiography and CMR: A Multimodal Machine Learning Framework for Right Ventricular Function Assessment
- **9:18 Yu-Neng Chuang | Rice University**
  - FaithLM: Towards Faithful Explanations for Large Language Models
- **9:24 Jun Jiang | UTHealth Houston**
  - H&E Referenced Multiplex Immunofluorescence Interpretation using Image Alignment and Generative AI

Opportunities Track:

- **11:25 Hyun-Hwan Jeong | Baylor College of Medicine**
  - MARVEL-GPT: Advancing Rare Disease Genomics with Capable Semantic Exploration Tools
- **11:31 Patrick Sui | Houston Methodist Hospital**
  - DeepAphasia: Transformer-based Aphasia Screening for Stroke Patients with Contrastive Segment-Level Labels
- **11:37 Han Liang | UT MD Anderson Cancer Center**
  - DrBioRight: an AI-driven chatbot for cancer data analysis
- **11:43 Tadesse Kebede Bahiru | University of Houston**

  - Responsible AI in Healthcare Datasets: Scores for Fairness, Privacy, and Compliance
- **11:49 W. Jim Zheng | UTHealth Houston**
  - Integrating AI-Generated Data into Next-Generation Biological Knowledge Bases

Impact Track:

- **15:20 Guantong Qi | Baylor School of Medicine**
  - Large Language Models for the Diagnosis of Rare Mendelian Diseases
- **15:26 Fangfang Yan | UT MD Anderson Cancer Center**
  - Artificial intelligence Predicts Genetic Network Disruptions to Overcome CAR-T Resistance in Mantle Cell Lymphoma
- **15:32 Nassim Beiranvand | TMCi**
  - Integrative AI and Computational Chemistry Innovations at TMCi: Pioneering Advances in Cancer Research
- **15:38 Abraham Bautista-Castillo | University of Houston**
  - AI-HEAT 3.0: A Clinical Decision Support System with a Precautionary Diagnosis Approach
- **15:44 Liwei Wang | UTHealth Houston**
  - Understanding Cancer Symptom Management Using Amazon Reviews: a Human-annotated Corpus

STUDENT RESEARCH SHOWCASE

Feb 21, 2025 | Main Hall

- **13:05 Rongbin Li** | **UTHealth Houston**
  - Novel Large Language Model Usage Enables Accurate Gene Set Annotation
- **13:12 Maryamsadat Mohtashamian** | **UTHealth Houston**
  - Deep Learning-based Approaches for Depression Detection via Sleep EEG
- **13:19 Shantanu Sarkar** | **University of Houston**
  - nASR: A Novel Neural Network Layer for EEG Artifact Detection and Reconstruction Using Generative AI
- **13:26 Pranav Mehta** | **UTHealth Houston**
  - Driving Healthcare Innovation: A Comprehensive Study of Artificial Intelligence Adoption Perspectives Among Healthcare Leaders, Providers, and Researchers
- **13:33 Zehan Li** | **UTHealth Houston**
  - Beyond Social Determinants: Unveiling Psychological Stressors in Psychiatric Notes through Advanced Language Modeling
- **13:40 Andrew Wen** | **Rice University**
  - Context Matching is not Reasoning: an assessment of current Approaches to Systemic Evaluation of LLMs in Clinical Settings
- **13:47 Merlyn Joseph** | **UTHealth Houston**
  - Advances in Uses for Deep Learning Models in Pharmacokinetics
- **13:54 Rastko Stojsin** | **UTHealth Houston**
  - Exploring O-GlcNAcylation Dysregulation's Role in Cancer Progression: A Network-Level Analysis Across TCGA Datasets

STEERING COMMITTEE

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ACKNOWLEDGMENTS

We extend our sincere gratitude to everyone who contributed to the success of the TMC AI Summit 2025. This event would not have been possible without the dedication, hard work, and support of our volunteers, partners, and community members. Thank you for helping us bring this vision to life.

Volunteers

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Thank you for your continued support and participation in the TMC AI Summit 2025!

SHUTTLE ROUTES AND PARKING