

**NSF EPSCoR Workshop:
Artificial Intelligence (AI) with No-Boundary
Thinking (NBT) to Foster Collaborations in
Research, Education and Training**

April 3 - 4, 2022
Downtown Little Rock, AR

Event Hosts

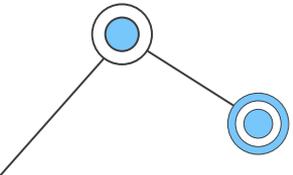
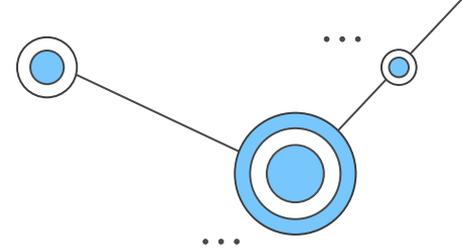


Xiuzhen Huang, PhD



Professor of Computer Science
Director, Center for No-Boundary Thinking (CNBT)
Interim Director of Molecular Biosciences Program
Arkansas State University

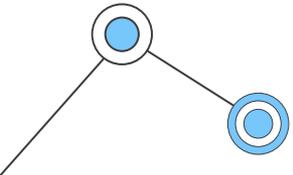
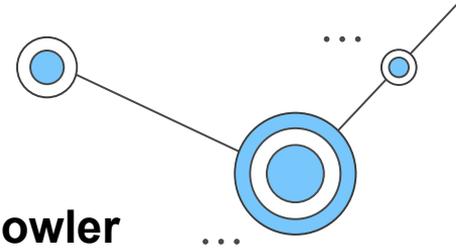
Dr. Huang conceived and defined the concept of No-Boundary Thinking (NBT). She founded the Arkansas Artificial Intelligence (AI) Campus, and founded the Joint Translational Research Lab on the campuses of Arkansas State University and St. Bernard's Medical Center's Internal Medicine Residency Program. Her research interests include Bioinformatics and Biomedical informatics; Artificial intelligence, Machine learning, deep learning; Graph theory and algorithms, Parameterized computation and complexity, Theory of computation. Dr. Huang was recently named as Arkansas Research Alliance Fellow, announced by Governor Asa Hutchinson. Dr. Huang serves as Associate Editor of IEEE/ACM Transactions on Computational Biology and Bioinformatics, and as a reviewer for major journals such as Nature Machine Intelligence, Nature Communications, Clinical Cancer Research, Nucleic Acids Research, Bioinformatics, Scientific Reports, Algorithmica, etc. Her current research projects are supported by funding agents including NSF and NIH.



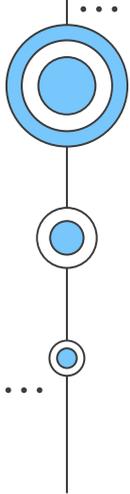
**Principal Investigator & Project Director, Arkansas National Science Foundation EPSCoR
Arkansas Economic Development Commission**

Jennifer Fowler is the statewide program director of Arkansas NSF EPSCoR, and principal investigator for the current Track-1 project, Data Analytics that are Robust and Trusted (DART, OIA-1946391). Jennifer is an Arkansas native and is passionate about research and creating more opportunities for learners. After attending the Arkansas School for Mathematics, Sciences, & the Arts (ASMSA), she obtained her bachelor's degree in Biology from the University of Arkansas. Prior to her promotion to PI/PD, she served for 7 years as the Director of Education, Outreach, & Diversity for Arkansas NSF EPSCoR, where she implemented a variety of programs and activities to broaden participation in science, technology, engineering, and math (STEM). She is currently pursuing her PhD in Molecular Biosciences at Arkansas State University with an emphasis in machine learning. Her thesis research involves evaluating machine learning approaches to identify possible genetic markers for types of cancer. She also serves as Director of Partner Engagement for National AI Campus, and on the board for Girl Scouts- Diamonds of Arkansas, Oklahoma, and Texas, and the ASMSA Board of Visitors.

Jennifer Fowler



Sponsors





This event is supported by NSF Award # OIA-2054737 and the above sponsors.



Agenda

Day 1: Sunday, April 3 @ Clinton Center (all times in central)

5:00PM **Reception Arrival & Registration** (Shuttles from Marriott to Clinton Center at 4:45 and 5:00)

5:30PM **Welcome & Introductory Remarks**

- Introduction by Jennifer Fowler & Dr. Tom Risch
- Video Message from Dr. Kelly Damphousse, A-State Chancellor
- Dr. Alan Utter, A-State Provost and Executive Vice Chancellor for Academic Affairs and Research
- Dr. Larry Cornett, Director of the Arkansas IDEa Network of Biomedical Research Excellence

6:00PM **Dinner Served**

6:30PM **AI Campus Student Awards Ceremony & Showcase**

- Introduction by Dr. Emily Bellis & Dr. Jake Qualls
- Student Awards presented by Dr. Alan Utter, Dr. Karl Walker, Dr. Abhijit Bhattacharyya
- Brendan Kosnik, Shelby McCormick, Caity Sims – Herbarium Images
- Zach Caspall - Fire Detection
- Muhammad Ashraf - Natural Language Processing
- Jason Causey - Agricultural Imaging
- Emilio Chavez - Maize Genomics
- Winthrop Harvey, Jose Azucena - Reinforcement Learning with Connect Four
- Chris Saldivar - COVID-19 study with Chest X-Ray Images (CXR)
- Laquita Noel - Deep Learning to Detect Drug-Induced Kidney Injury

8:30PM **Adjourn** (Shuttles from Clinton Center to Marriott at 8:15 and 8:30)



Day 2: Monday, April 4 @ Little Rock Marriott (all times in central)

7:00AM Registration & Continental Breakfast *in Riverview Room*

8:00AM **Welcome & Introductory Remarks** *in Arkansas Ballroom*

- Jennifer Fowler, Principal Investigator & Project Director, Arkansas NSF EPSCoR
- Dr. Xiuzhen Huang, A-State Founding Director of the Center for No-Boundary Thinking, Professor of Computer Science
- Video Message from Governor Asa Hutchinson
- Dr. Tucker Patterson, FDA National Center for Toxicological Research (NCTR)

8:45AM **The K-12 to Postsecondary Continuum: Ensuring a Highly Skilled Future Workforce**
Dr. Tina Moore, ADE *in Arkansas Ballroom*

9:00AM **Opening Keynote Talk** *in Arkansas Ballroom*
Arkansas Secretary of Commerce Mike Preston



Day 2: Monday, April 4 @ Little Rock Marriott (all times in central)

9:30AM **Technical Session: AI for drug development – from Preclinical Studies to RWD**

by the Food & Drug Administration National Center for Toxicological Research (FDA NCTR) *in Arkansas Ballroom*

- Dr. Joshua Xu, PathologAI: An AI framework for preclinical digital pathology
- Dr. Xi Chen, ToxGAN: An AI Alternative as in-silico animal studies
- Dr. Yue Wu, Mining drug labeling documents for safety evaluation
- Dr. Leihong Wu, Explainable AI for regulatory science
- Dr. Dong Wang, Harness the power of AI for real-world data analysis

11:00AM Short Break

11:15AM **Challenges and Opportunities for Advancing Biomedical Artificial Intelligence in NBT**

by Dr. May Wang, *in Arkansas Ballroom*

12:00PM Lunch Served *in Riverview Room*

12:30PM **Identifying Viruses from Host Genomes and Predicting Virus-host Interactions and Disease Severity** by Dr. Zhongming Zhao *in Riverview Room*

Day 2: Monday, April 4 @ Little Rock Marriott (all times in central)

1:00PM **Breakout Technical Sessions** (additional presenters and final schedule to be announced)

- Dr. Jiaqi Gong, AI-Empowered Geographical Research in Rural Social Determinants for Combating Opioids
- Dr. Hana Khamfroush, AI at the Edge for Smart Decision Making in Smart Cities
- Dr. Shubhra Kanti Karmaker, Data Science for All
- Dr. Forest Agostinelli, Explainable AI & the Rubik's Cube

2:30PM **Technical Session: AI in Statistics & Data Science** *in Arkansas Ballroom*

- Dr. Lei Liu, HIMA2: High-dimensional Mediation Analysis and its application in epigenome-wide DNA methylation data
- Dr. Bradly C. Stadie, Making Sense of the Past with Hindsight Divergence Minimization
- Dr. Yifan Peng, Prior Knowledge Enhances Radiology Report Generation

3:30PM **Networking Break & Refreshments** *in Riverview Room*

Day 2: Monday, April 4 @ Little Rock Marriott (all times in central)

4:00PM **Short Presentations & Lightning Talks** *in Arkansas Ballroom*

- Dr. Fred Prior,

5:00PM **Closing Remarks** *in Riverview Room*

5:30PM **Adjourn**



Little Rock



Transportation (not including rental car services)



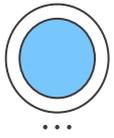
Marriott Complimentary Airport Shuttle

Attendees staying at the Marriott can use the free airport shuttle. Call the hotel at 501-906-4000 to inquire. Other hotels may offer free airport shuttles as well.



Taxi

Little Rock has one licensed taxi service with little to no wait times. Call 501-222-2222 to reserve a taxi, 24 hour service.



Uber & Lyft

Uber and Lyft are both available in Little Rock, but there is a driver shortage and current rates are unusually high.



Rock Region Metro

Little Rock's public bus and streetcar/trolley service has stops throughout the Downtown Little Rock & North Little Rock area. The streetcar is free, bus fares are typically low. Visit <https://rrmetro.org/> for maps and schedules.



Walking, Bicycles, and Scooters

Downtown Little Rock is pedestrian friendly and offers Lime or Bird scooter rentals and bike rentals. The Arkansas River Pedestrian & Bike Trail runs behind the Marriott along the river, with four pedestrian bridges connecting to Downtown North Little Rock.

Locally Owned Downtown Restaurants

@ The Corner

This gourmet diner will offer breakfast and brunch items on Sunday until 2PM.



Lost Forty (near Clinton Center)

This craft brewery offers all-day brunch until 9PM Sunday and will be open for dinner Monday until 9.



Sticky Chicken Shack

This eclectic music venue and restaurant will be open Sunday until 10:30PM.



Cache

This fine dining French restaurant will be open for dinner service Monday night.



Camp Taco (near Clinton Center)

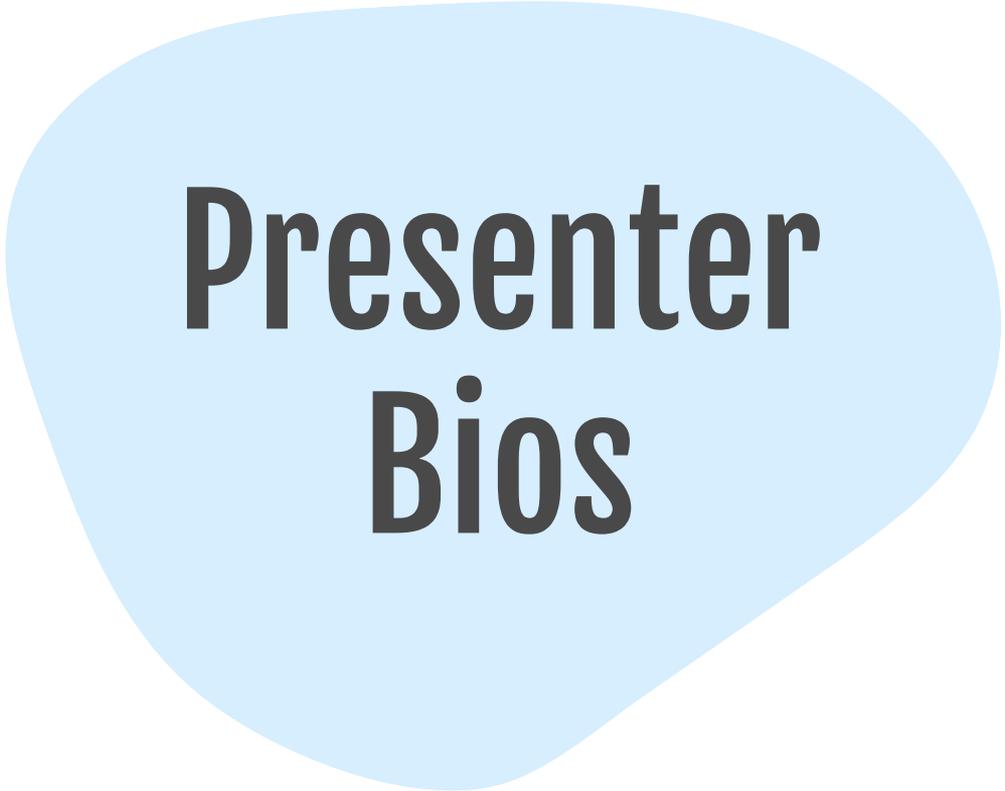
This 90's summer camp themed restaurant and microbrewery offers unique Mexican inspired cuisine until 9PM daily.



Nexus Coffee

This gourmet coffee shop offers pastries and small bites 7AM - 5PM Monday.





Presenter Bios





Tucker Patterson, PhD

**Acting Center Director of the US Food and Drug Administration (FDA)
National Center for Toxicological Research (NCTR)**

Prior to this appointment, he served as Deputy Director for Research in the Office of the Center Director/Office of Research, the Associate Director for Science & Policy and as the Associate Director and Health Science Program Manager in Regulatory Compliance & Risk Management at NCTR. Dr. Patterson received a B.S. in Chemistry from the University of Arkansas at Fayetteville and a Ph.D. in Pharmacology from the University of South Carolina. He completed a two-year postdoctoral fellowship with the Center for the Neurobiology of Aging at the University of Florida and continued his postdoctoral training at NCTR through a postgraduate research appointment with the Oak Ridge Institute for Science and Education and as a staff fellow. Dr. Patterson worked for three years as a toxicologist for the State of Arkansas at the Livestock and Poultry Commission prior to returning to NCTR in 2001 where he worked in the Division of Neurotoxicology as a senior scientist.

The K-12 to Postsecondary Continuum: Ensuring a Highly Skilled Future Workforce

Tina Moore, EdD



Arkansas Department of Education (ADE) Director of STEM and Computer Science Continuum

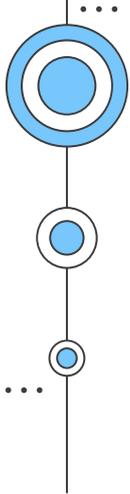
Dr. Tina Moore received a bachelor of science degree from the University of Arkansas at Fayetteville and a master's degree in education from the University of Arkansas at Little Rock, both in secondary mathematics education. She completed a specialist degree through Arkansas State University and a doctoral degree through Liberty University in educational leadership, curriculum, and instruction. Her passion for math, science, and lifelong learning has led to a diverse career path in education, healthcare, and the corporate sector. In her current role, she coordinates and leads strategic cross-sector and interagency partnerships among stakeholders to develop and solidify comprehensive K-12 to postsecondary education and workforce readiness pathways across the state. She analyzes data on emerging education, training, and employment trends in STEM to inform policy recommendations. Her priorities include increasing and diversifying the STEM workforce and teacher pipeline as well as creating opportunities for traditionally underserved populations. Prior, Dr. Moore has held various STEM-related leadership positions including serving as the ADE Mathematics Program Manager; the Arkansas State University at Beebe Dean of Business, Math, and Science; and the University of Arkansas for Medical Sciences Center for Health Literacy Director.

Michael Preston



Arkansas Secretary of Commerce & Executive Director, Arkansas Economic Development Commission

Gov. Asa Hutchinson appointed Michael “Mike” Preston executive director of the Arkansas Economic Development Commission (AEDC) in March 2015 and Secretary of Commerce July 2019. Preston is highly regarded as a leading advocate in economic development. Before joining AEDC, he served six and a half years as the Vice President of Government Relations for Enterprise Florida, the state’s primary economic development organization. In 2018, Preston was selected to join The Wall Street Journal’s prestigious CEO Council. It is an invitation-only group that connects some of the world’s most ambitious and influential leaders to discuss the issues shaping the future. The members lead companies that collectively employ more than eight million people, generate \$2.9 trillion in annual revenue, and represent 20 countries in a wide cross section of industries. A 2005 graduate of the University of Florida, Mike and his wife Anne – along with their young son Pierce – are proud to call Arkansas home. They both volunteer in the community in a variety of ways, including the Children’s Advocacy Centers of Arkansas and the Cystic Fibrosis Foundation.



Kelly Damphousse, PhD

Arkansas State University Chancellor



Kelly Damphousse was raised in Canada, and became the first member of his extended family to attend college when he enrolled at Lethbridge Community College in 1980. He earned an associate's degree in law enforcement in 1982 from LCC, before starting a three-year stint in the Alberta Correctional Service as a correctional officer. He earned a BS in Criminal Justice from Sam Houston State University in 1987. After working for Macy's in Atlanta and New Orleans, he earned his doctorate at Texas A&M University in 1994. He began his academic career at the University of Alabama at Birmingham, before joining the SHSU faculty in the College of Criminal Justice in 1995. Damphousse moved to the University of Oklahoma in 1997, where he directed several research projects, most notably the "American Terrorism Study" and the National Institute of Justice's Arrestee Drug Abuse Monitoring project in Oklahoma City and Tulsa. He also served as Dean of the College of Arts and Sciences, and as OU's Faculty Athletics Director before being named the Chancellor at Arkansas State University in 2017. In 2021, he was unanimously elected as President of the Sun Belt Conference's Board of Directors and to the NCAA Board of Directors. He and his wife Beth have been married for 33 years, and they have two daughters: Kayleigh Damphousse and Dr. Kristen Howell.



ToxGAN: An AI Alternative as in-silico animal studies

Xi Chen, PhD

Postdoctoral Associate, Division of Bioinformatics and Biostatistics, FDA NCTR

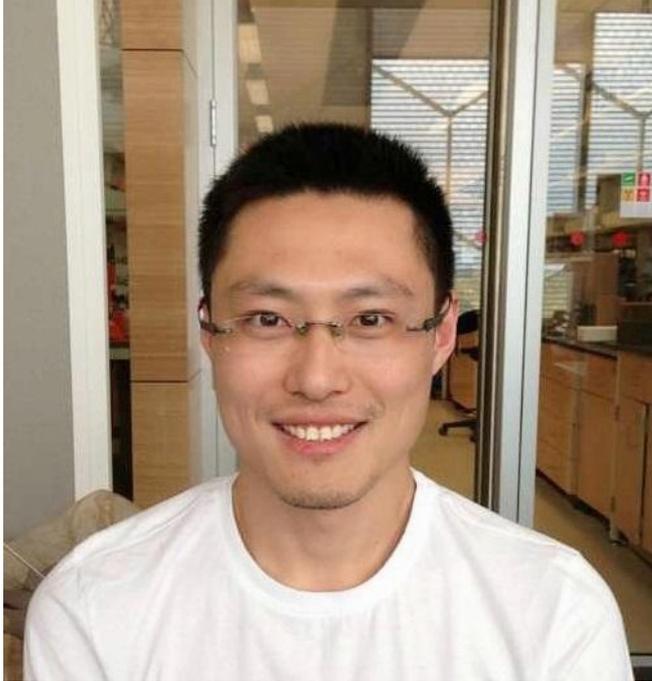
Dr. Xi Chen is a She has more than 10 years of research experience in the field of Bioinformatics, Molecular, Cellular and Developmental Biology. Her research interests are development and application of data mining methods and systems biology strategies in basic biological research and translational medicine investigation, aiming to interpret medical big data and obtain novel and insightful understanding of the biological and clinical meanings at molecular level. Recently, she mainly focuses on using artificial intelligence as an alternative to animal testing.



Mining Drug Labeling Documents for Safety Evaluation

Yue Wu, PhD

Visiting Scientist, Division of Bioinformatics and Biostatistics, FDA NCTR



Dr. Yue Wu obtained his PhD (2015) from Brock University in Canada. His doctoral research focused on addressing fundamental questions in receptor biology using genetic and biochemical approaches. After completion of his PhD, Dr. Wu was accepted to a joint postdoctoral training program in Massachusetts General Hospital and Harvard Medical School, where he focused on studying transcriptional signaling networks by RNA/DNA sequencing and phosphoproteomics. Meanwhile, he received training in bioinformatics from Harvard T. H. Chan School of Public Health. Dr. Wu joined NCTR in 2019 and he has been working on the development of Liver Toxicity Knowledge Base to provide a better understanding of drug-induced liver injury (DILI) mechanisms and to improve DILI predictive models. Dr. Wu is experienced in text mining on FDA/EMA drug labeling documents. He is interested in developing advanced artificial intelligence-based tools for data mining of adverse events from text documents.

Artificial Intelligence and Real World Evidence

Dong Wang, PhD

Supervisory Mathematical Statistician and Branch Chief of the Biostatistics Branch, FDA NCTR

Dr. Dong Wang received his Ph.D. in genetics in 2003 and his Ph.D. in statistics in 2006 from Iowa State University. He was a faculty member in the Department of Statistics, University of Nebraska-Lincoln, from 2006 to 2014 with the rank of assistant professor and later, associate professor. (He was an investigator on an EPSCoR grant in this period.) He worked for three years as the leader of Statistics and Mathematics Group at Dow AgroSciences between 2014 and 2016. He joined NCTR in December 2016 as a senior staff fellow in the Biostatistics Branch of the Division of Bioinformatics and Biostatistics. Dr. Dong Wang has interest and experience in various aspects of statistics, machine learning, and bioinformatics. He is conducting research on 1) measurement error models regarding biomarkers based on deep-sequencing technology, 2) constructing Bayesian networks for drug-induced liver toxicity by integrating in vitro and in vivo data in addition to expert knowledge, and 3) developing machine learning assisted models for propensity score modeling applied to real-world data.



Explainable AI for Regulatory Science

Leihong Wu, PhD



Bioinformatician, Division of Bioinformatics and Biostatistics, FDA NCTR

Dr. Leihong Wu received his bachelor's degree in bioinformatics in 2008 from Zhejiang University in China. He then received his Ph.D. degree in pharmacology from Zhejiang University in 2013. In the same year, he joined Division of Bioinformatics and Biostatistics at NCTR as an ORISE postdoctoral fellow and, in 2017, he officially joined NCTR as visiting scientist. Dr. Wu has published over 30 peer-reviewed journal articles, with more than 10 publications as the first or corresponding author. Dr. Wu's research interest is to apply bioinformatics – particularly, Artificial Intelligence (AI) and Machine Learning (ML) – to biomedical research and informatics. Specifically, Dr. Wu's work has focused on the development of algorithms for biological and pharmaceutical research tasks such as drug safety, QSAR modeling, and genomics. Dr. Wu's research addresses some of the most pressing issues in understanding and applying novel bioinformatics database tools and frameworks that enhance the accuracy, safety, and efficiency of drug discovery, repositioning, and efficacy studies. His current interests focus on developing AI/machine learning algorithms in various drug- and food-associated research areas including hepatotoxicity, genomics, and text mining.

PathologAI: An AI framework for preclinical digital pathology

Supervisory Computer Scientist, Division of Bioinformatics and Biostatistics, FDA NCTR

After graduating with a Ph.D. in electrical engineering from Texas A&M University in 1999, Dr. Xu worked as a senior software engineer for a congressionally-funded mobile telemedicine program at the Texas Center for Applied Technology, an R&D center of the Texas A&M University System. In this position, he designed and developed many vital modules through software development and hardware integration. In 2007, he joined ICF International to work as an onsite contractor for the National Center for Toxicological Research. Dr. Xu's primary responsibilities included: 1) data analysis, 2) bioinformatics method development, and 3) design and development of bioinformatics tools and systems to manage and analyze genomics data. In 2012, Dr. Xu joined the newly formed Division of Bioinformatics and Biostatistics to focus on genomics and image analysis. In 2018, he became the Branch Chief for Research-to-Review and Return (R2R) in the division. Dr. Xu's research interests lie in onco-panel sequencing, liquid biopsy, genomics, bioimaging data analysis, text mining, and artificial intelligence.

Joshua Xu, PhD



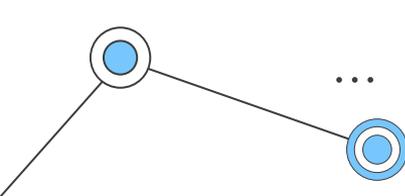
Challenges and Opportunities for Advancing Biomedical Artificial Intelligence in No-Boundary Thinking

Wallace H. Coulter Distinguished Faculty Fellow, Professor in Electrical and Computer Eng. and Biomedical Engineering, Georgia Institute of Technology and Emory University

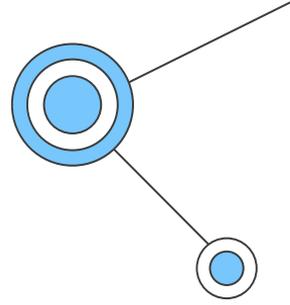
Dr. Wang's research is in Biomedical Big Data and AI for predictive, personalized, and precision health (pHealth). She published 260+ peer-reviewed articles in refereed journals and conference proceedings with 13,300+ GS citations, and delivered 250+ invited and keynote lectures. Dr. Wang is the Director of Biomedical Big Data Initiative, a Georgia Distinguished Cancer Scholar, a Petit Institute Faculty Fellow, a Kavli Fellow, an AIMBE Fellow, an IAMBE Fellow, an IEEE Fellow, and a member of Board of Directors in American Board of AI in Medicine. She received BEng from Tsinghua University China, and MS with PhD degrees from Georgia Institute of Technology. She is a recipient of Georgia Tech Outstanding Faculty Mentor Award and Emory University MilliPub Award (for a high-impact paper that is cited over 1,000 times). Dr. Wang's research has been supported by NIH, NSF, CDC, Georgia Research Alliance, Georgia Cancer Coalition, Shriners' Hospitals for Children, Children's Healthcare of Atlanta, Enduring Heart Foundation, Coulter Foundation, Microsoft Research, HP, UCB, and Amazon. Dr. Wang is currently elected Chair of ACM Special Interest Group in Bioinformatics (SIGBio), the Senior Editor for IEEE Journal of Biomedical & Health Informatics (J-BHI), an Associate Editor for IEEE Transactions for BME, and IEEE Reviews for BME, and serves as a regular panelist for NIH CDMA study section.

May Wang, PhD





Identifying Viruses from Host Genomes and Predicting Virus-host Interactions and Disease Severity

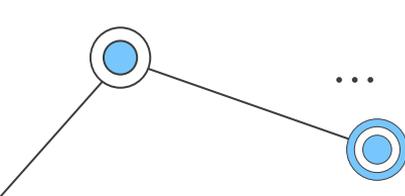


Zhongming Zhao, PhD

Chair Professor for Precision Health, Founding Director of Center for Precision Health at the University of Texas Health Science Center at Houston (UTHealth) ...

Dr. Zhongming Zhao has a unique, interdisciplinary educational and research background. He completed master's degrees in Genetics, Biomathematics, and Computer Science, Ph.D. degree in Human and Molecular Genetics, and Postdoctoral Fellowship in Bioinformatics. Before he joined UTHealth in 2016, he was Ingram Endowed Professor of Cancer Research, Professor (tenured) in the Departments of Biomedical Informatics, Psychiatry, and Cancer Biology at Vanderbilt University Medical Center, Chief Bioinformatics Officer of the Vanderbilt-Ingram Cancer Center, and Associate Director of the Vanderbilt Center for Quantitative Sciences. Dr. Zhao has broad interests in bioinformatics, genomics, precision medicine, and machine learning and has co-authored more than 400 scientific papers in these areas (H-index = 71, Google Scholar). Throughout his career, He has trained more than 70 students and postdoctoral fellows (24 have become academic faculty), mentored 11 junior faculty, and co-mentored/collaborated with five NIH K awardees. Dr. Zhao is the founding president of The International Association for Intelligent Biology and Medicine. He was elected as a fellow in the American College of Medical Informatics and the American Medical Informatics Association in 2021.





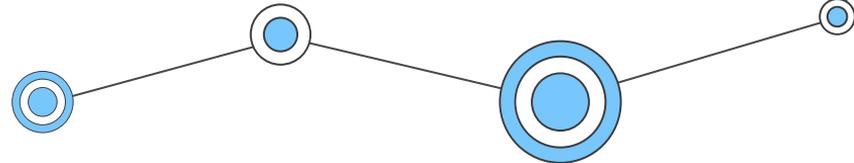
...

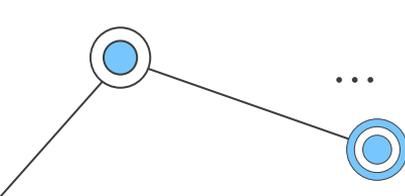
AI-Empowered Geographical Research in Rural Social Determinants for Combating Opioids

Jiaqi Gong, PhD

**Associate Professor of Computer
Science at the University of Alabama**

Dr. Gong's research focuses on Human-Centered AI for integrating human-centered computing and principles of AI to augment human capabilities in a social and ethical context. The Sensor-Accelerated Intelligent Learning (SAIL) laboratory was founded and led by Dr. Jiaqi Gong starting from 2017.





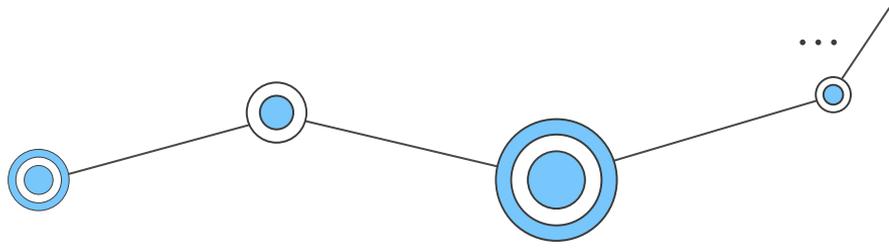
Explainable Artificial Intelligence & the Rubik's Cube



Forest Agostinelli, PhD

Assistant professor, Department of Computer Science & Engineering, University of South Carolina

Dr. Forest Agostinelli received his B.S. from the Ohio State University, his M.S. from the University of Michigan, and his Ph.D. from the University of California, Irvine under Professor Pierre Baldi. His group conducts research in the fields of deep learning, reinforcement learning, search, explainability, bioinformatics, and neuroscience. He also serves as a faculty member for the Artificial Intelligence Institute of UofSC. His homepage is located at <https://cse.sc.edu/~foresta/>



Data Science for All

Tenure-Track Assistant Professor, Department of Computer Science and Software Engineering, Auburn University

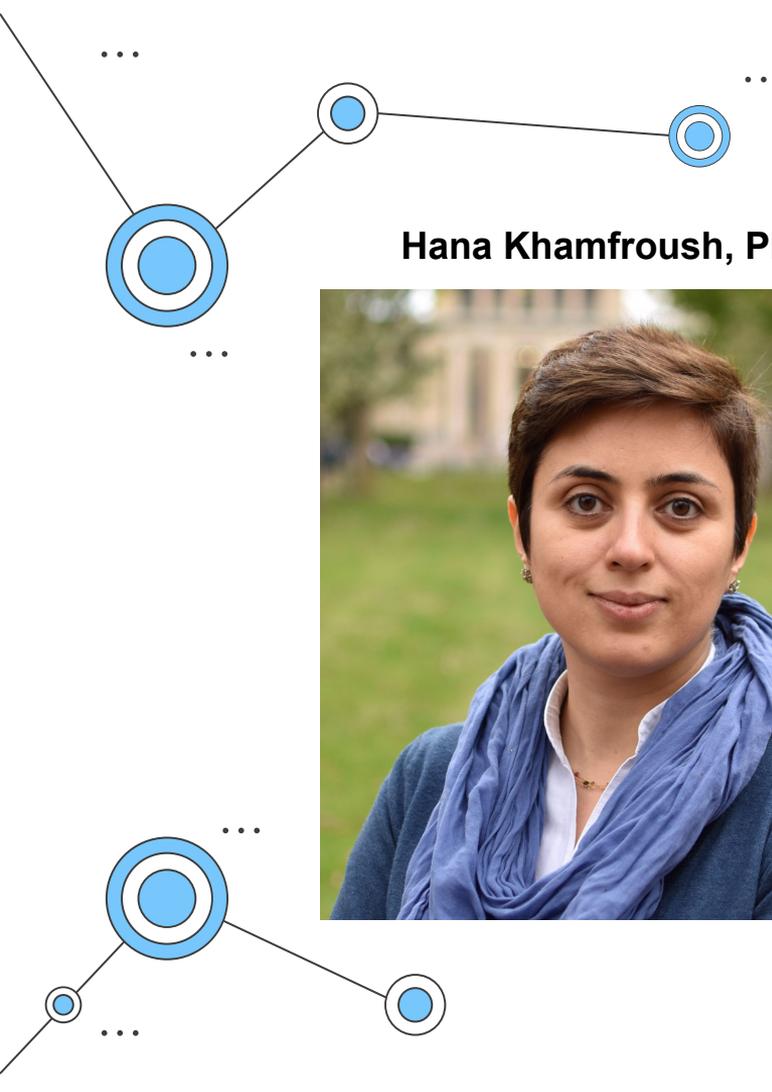
Dr. Karmaker's research interest lies at the intersection of Big Data, Artificial Intelligence and Natural Language Processing.

Specifically, he is interested in the following broad question: "How can we make data science more accessible to the general people?"

Before joining Auburn University, Santu was a Postdoctoral Research Associate in the Laboratory for Information and Decision Systems at Massachusetts Institute of Technology (MIT), hosted by Dr. Kalyan Veeramachaneni. Prior to joining MIT, he completed his Ph.D. in computer science from University of Illinois Urbana Champaign where he also worked as a research intern at Microsoft Research, Yahoo Research and WalmartLabs. Santu has published numerous research papers at premier CS venues including ACM Computing Surveys, ACM SIGIR, WWW, ACM CIKM, IEEE CEC and ACL SIGNLL CoNLL. Santu has served as a program committee member in SIGIR, ACL, KDD, WSDM, CIKM, IUI, EMNLP and also served as invited reviewer of IEEE Transactions on Knowledge and Data Engineering (TKDE), Knowledge and Information Systems (KAIS) Journal and Neurocomputing journals. For more details about the speaker, please visit: <https://karmake2.github.io/>.

Shubhra Kanti Karmaker ("Santu"), PhD





AI at the Edge for Smart Decision Making in Smart Cities

Hana Khamfroush, PhD



Assistant professor of Computer Science, University of Kentucky

Before joining UK, Dr. Khamfroush was a research associate with the department of Computer Science and Engineering, Penn State University from 2015 to 2018. Hana's current area of research include applications of AI to networking, edge computing and edge intelligence, applications of AI to smart city, and federated and distributed learning. Hana received several grants for her research from the National Science Foundation (NSF) and Cisco Research Inc. She was named a rising star in EECS by MIT and CMU in 2015 and 2016. She was selected as one of the 200 young researchers for the Heidelberg Laureate Forum in Germany in 2016. Hana regularly serves as a reviewer for IEEE international conferences and journals and is a senior member of IEEE.

No Boundary Thinking - AI-Driven Big Data Analytics

Arkansas Research Alliance Scholar, Professor of Data Science, Department of Computer Science and Computer Engineering, University of Arkansas

Dr. Justin Zhan is the Director of Data Science Core, Arkansas Integrative Metabolic Research Center. He is an adjunct professor at the Department of Biomedical Informatics, School of Medicine, University of Arkansas for Medical Sciences. His research interests include Data Science, Biomedical Informatics, Deep Learning & Big Data Analytics, Cyber Security & Blockchain, Network Science & Social Computing. He has served as a conference general chair, a program chair, a publicity chair, a workshop chair, or a program committee member for over one-hundred and fifty international conferences and an editor-in-chief, an editor, an associate editor, a guest editor, an editorial advisory board member, or an editorial board member for about thirty journals. He has published 246 articles in peer-reviewed journals and conferences and delivered 30 keynote speeches and invited talks. His research has been extensively funded by National Science Foundation, Department of Defense, and National Institute of Health.

Justin Zhan, PhD



HIMA2: High-dimensional Mediation Analysis and its application in epigenome-wide DNA methylation data

Lei Liu, PhD

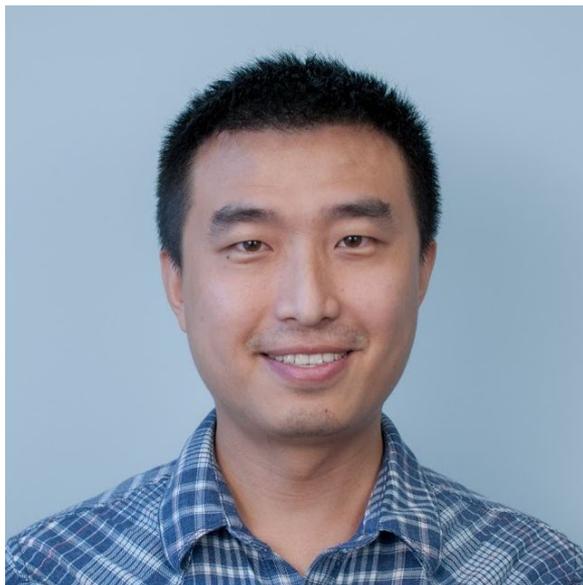
**Professor, Division of Biostatistics,
Washington University in St. Louis**



Dr. Lei Liu has diverse research interests in biostatistical and data science methods, including survival analysis, longitudinal data analysis, spline regression, personalized medicine, and machine learning. His research is focused on the analysis of high dimensional omics (epigenetics and microbiome) data, medical cost data, and joint models of multi-outcome data. He collaborates with clinicians in various medical fields, e.g., cancer, cardiovascular, addiction, ophthalmology, nephrology, infectious disease, asthma, and diabetes. Dr. Liu is a Fellow of the American Statistical Association. He is an associated editor of Biometrics and Statistics in Medicine, and an editorial board member of the Journal of the National Cancer Institute and Frontiers in Psychiatry. He is a standing member of NIH Biostatistical Methods and Research Design Study Section (2016-22), the only study section focusing on biostatistical methodology development. Dr. Liu is a co-founder and chair of the International Workshop on the Statistical Analyses of Multi-outcome Data (SAM), which has been held every other year from 2012. He was the Biometrics Section Chair of the International Chinese Statistical Association, and American Statistical Association representative to American Association for the Advancement of Science (the World's largest general scientific society and publisher of Science).

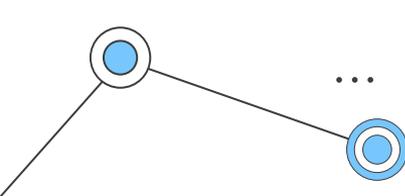
Prior Knowledge Enhances Radiology Report Generation

Yifan Peng, PhD



Assistant professor, Department of Population Health Sciences, Weill Cornell Medicine

Dr. Peng received his PhD and MS in Computer Science from the University of Delaware under Dr. Cathy H. Wu and Dr. Vijay K. Shanker. Prior to that, he received an M.Eng. in Signal and Information Processing from Peking University in China, and his BSE in Computer Science and Technology from the Beijing University of Technology. His research interests include bio text mining, clinical natural language processing, deep learning for healthcare, and biomedical imaging. Dr. Peng has served as a reviewer for numerous relevant publications such as ACM Transactions on Computing for Healthcare, IEEE/ACM Transactions on Computational Biology and Bioinformatics, and Nature Computational Science. He completed a research fellowship at NIH NCBI and has received research support from Google, NVIDIA, and Amazon.



Making Sense of the Past with Hindsight Divergence Minimization

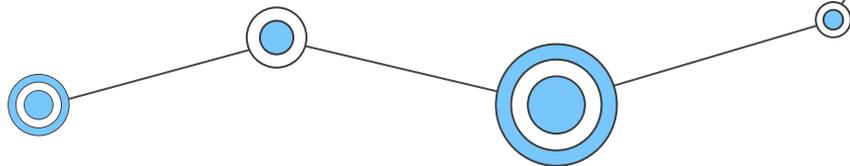
**Research Assistant Professor, Toyota
Technical Institute at Chicago**

Dr. Stadie is a research assistant professor at TTIC, an academic institute located on the campus of the University of Chicago. In 2018, he completed his PhD at UC Berkeley under Pieter Abbeel. In 2016 and 2017, he was a research scientist at Open AI, where he was advised by Ilya Sutskever.

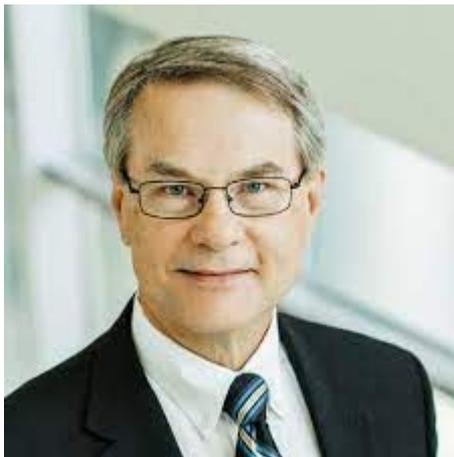
He received a BA in mathematics from the University of Chicago, where he spent four wonderful years. During this time, he had the honor of working under Paul Sally. He is interested in developing machine intelligence. His research sits at the intersection of reinforcement learning and statistics, and focuses on how we can use statistical tools to improve generalization in reinforcement learning. He will soon be joining Northwestern University as an assistant professor in the Department of Statistics.



Bradley Stadie, PhD



Explainable AI for Cancer Imaging



Fred Prior, PhD

**Distinguished Professor and Chair, Department of Biomedical Informatics;
Professor of Radiology, University of Arkansas for Medical Sciences**

Dr. Prior has extensive R&D experience in industry and academia, focused on the design of advanced medical information management and imaging technologies. He has held senior management positions in a variety of R&D environments ranging from Silicon Valley startups to major multinational corporations in the US and Europe. Dr. Prior's research interests include cancer informatics, radiomics, and neuroimaging informatics. He serves as principal investigator and director of the US National Cancer Institute's Cancer Imaging Archive project and is the lead PI of an NCI ITCR team exploring the integration of radiomics and pathomics. In 2021 Dr. Prior's team joined a consortium of European colleagues to successfully compete for a Horizon 2020 award from the EU to develop a platform for distributed data management and machine learning to advance precision medicine in oncology. Dr. Prior directs informatics efforts for the UAMS Translational Research Institute and Pediatric Clinical Trial Network. He is an associate editor of several leading scientific journals, and a reviewer for numerous scientific and engineering journals as well as U.S. and European funding agencies. He is the author of over 150 scientific publications and holds 6 US and international patents.

Thank you!

CREDITS: This presentation template was created by [Slidesgo](#), including icons by [Flaticon](#), infographics & images by [Freepik](#) and illustrations by [Stories](#)

Please keep this slide for attribution

