BRIDGE NEWSLETTER

BIOSTATISTICS RESEARCH & INVESTIGATION DIGEST

UTHSC MEDICINE

Welcome to our 2025-2026 Winter Newsletter

Announcing the Retirement of Dr. Jim Wan

Dr. Jim Wan, Professor of Biostatistics joined UTHSC in 1994.

Article by Saunak Sen, Photo provided by Dr. Wan.

Dr. Jim Wan is retiring at the end of this year after a distinguished 32 years of service to UTHSC. Jim obtained his BS in Mathematics from Chinese University of Hong Kong, followed by a MS, MPhil, and PhD in Statistics from Yale University. After work as a postdoctoral scholar and research scientist at University of Alabama at Birmingham and University of Michigan at Ann Arbor, Jim joined UTHSC as Assistant Professor in 1994. He was promoted to Associate Professor in 2000 and Professor in 2014. In his career he has published over 200 journal articles and has filed two patents. He has served on

numerous master's and doctoral student committees, and served on the BERD unit. Since 2021 he supported the Department of Obstetrics and Gynecology as faculty biostatistician, and has contributed to numerous funded research studies. A profile of Jim appeared in the 2022 Division of Biostatistics summer newsletter at https://uthsc.edu/preventive-medicine/documents/biostats-newsletter-summer-2022.pdf. We wish him the best as he embarks on a new stage of his life!

Division Retreat: Team Building with the National Ornamental Metal Museum

Article by Saunak Sen, Photos by Trish Goedecke & Gregory Pharage

The division held its annual retreat (the 10th since 2015) on November 14, 2025. Members met at Dr. Beans coffee shop on South Main for a social hour followed by a tour of the Metal Museum. We engaged in a group activity of making copper flowers, followed by a business meeting on strategic issues. The retreat concluded with lunch at Central BBQ with Jay Fowke, Interim Chair.

Spotlight: Assistant Professor Hyo Young Choi

Interviewed for biostats BRIDGE newsletter by Trish Goedecke, Photo provided by Hyo Young Choi

Dr. Hyo Young Choi loves cats. Before adopting her first cat, she would stroll her neighborhood seeking out the cats she could visit along the way. When a beautiful white one became a regular visitor, she fed him and eventually took him in. Hyo Young named him Heedong after a character in Korean animation, an adorable, white-diapered baby with a quick temper.

Hyo Young also enjoys reading about science, in part because she followed an indirect path to her current work. At her high school in South Korea she chose liberal arts, with no science or mathematics involved. Her undergraduate studies were in economics and applied statistics for finance, shifting to biology only after she came to the United States in 2013.

She had two doctoral advisors at UNC in Chapel Hill: Steve Marron in statistics and Neil Hayes in cancer research. When Hayes moved from UNC to UTHSC, Hyo Young joined as a postdoctoral fellow. Once here, she applied and joined the department of Preventive Medicine as a biostatistician.

In her current work, Hyo Young is fascinated to be studying omics data integration as a tool to investigate cellular plasticity, a key driver contributing to the aggressiveness of cancer. Many of us have heard of plasticity as a boon in stem cell research. Stem cells can become anything; we generally consider this a strength. Cancer, however, can lead healthy organ cells toward plasticity or de-differentiation, in which they lose the ability to function in their necessary roles. By integrating transcriptomics, epigenomics, and other omics data, Hyo Young aims to unravel how this increased plasticity is associated with more aggressive tumor behavior and therapeutic resistance.

Asked whether biology or statistics are of greater interest now, Hyo Young responds that she wants to understand biology deeply, to more appropriately apply statistical analysis. “I am still learning,” she says.

Meet Postdoc Harsh Dubey

Dr. Harsh Dubey at Elephant Falls (provided by Harsh Dubey)

Interview by Trish Goedecke

Dr. Harsh Dubey joined the Biostatistics team in 2025, recently graduated from the University of Massachusetts, Amherst. At Amherst he enjoyed hiking trails in the broad forested area surrounding the small town. He hiked with friends, especially during Covid, solo at times, and in the past year with his wife who came to join him from India. These two had met during their undergraduate years in New Delhi.

In Memphis, Harsh and his wife have settled in near the St. Jude campus. He enjoys the Indian community they have found here, complete with restaurants and grocery stores providing some of his favorite foods from home. He takes in

the Big River Walk and, for its historical significance, deeply appreciates the National Civil Rights Museum.

At Amherst, Harsh focused largely on theory and methodology such as developing algorithms at the intersection of statistics and optimization. At UTHSC, he has a more applied focus, collaborating with Saunak Sen on approaches for working with large omics data. These include bilinear and Bayesian modeling techniques, and the development of software packages for the Julia programming language. Harsh appreciates the opportunity to apply his methodological skills to real-world problems.
Look for Harsh in the coming year at the Madison complex, as our Preventive Medicine department plans to make its new home there.

Biomedical Data Science Internship Program for Summer 2025

Biomedical Data Science Interns with the UTHSC Summer Research Scholars at the Community Science Exhibition 2025, Photo provided by Gregory Pharage

Summary By Gregory Farage and Tristan Hayes with contributions from internship mentors

Our division recruits summer interns each year to work with faculty on focused research projects in biostatistics, data science, and public health. Interns typically spend 10–12 weeks engaged in hands-on research and professional development. Since the program's founding in 2016, 25 interns have completed the internship and gone on to graduate training and careers in statistics,

biostatistics, epidemiology, computer science, and health data science. The 2025 cohort continued this tradition, contributing to projects in methodological development, software tools, and applied biomedical research.

This year, we hosted graduate students from institutions including Florida State University, the University of Michigan, the University of Memphis, and the University of North Carolina. In addition to their research activities, interns participated in a structured mentorship program run in collaboration with UTHSC's Summer Research Scholars Program. They also presented their work in the Biostatistics Seminar Series and shared posters at the Community Science Exhibition held at Rhodes College on July 26, 2025.
This year the program "graduated" another outstanding summer class: congratulations to Arnab Aich, Abhirath Anand, Shengqiang Chen and Ziyi "Zoey" Zhang, and to their mentors Drs. Chi-Yang Chiu, Gregory Farage, Saunak Sen, Yangbo Sun, Yuan Zhang, and Qi Zhao.

Arnab Aich (mentor Yuan Zhang) is a PhD student in Biostatistics at Florida State University. During his internship, Arnab developed RMSTSS, a comprehensive R package and interactive Shiny web application designed to address the growing need for power and sample size tools in clinical study design. The software is based on Restricted Mean Survival Time (RMST), an easy-to-interpret and robust alternative to the traditional hazard ratio. RMSTSS supports complex study designs by combining fast analytic calculations with simulation-based bootstrapping, and the Shiny app provides a user-friendly point-and-click interface. Users can upload data, configure visual analyses, create interactive survival and power plots, and generate downloadable PDF reports with a single click.

Abhirath Anand (mentors Gregory Farage and Saunak Sen) is an MSc student in Biostatistics at the University of Michigan. During his internship, Abhirath worked on developing BigRiverMetabolomics.jl, a Julia package designed to support end-to-end workflows for metabolomics matrices. This umbrella package builds on two component packages that he also contributed to: BigRiverJunbi.jl and BigRiverMakie.jl. BigRiverJunbi.jl streamlines data preparation for 'omics datasets, including imputation, normalization, transformation, and standardization. BigRiverMakie.jl leverages the Makie.jl plotting ecosystem to create visualizations of the data and the resulting analyses.

Shengqiang Chen (mentors Chi-Yang Chiu and Qi Zhao) is a PhD student in Biostatistics at the University of Memphis. During his internship, Shengqiang contributed to research on the role of metabolomics in the development and progression of sarcopenia, a condition characterized by progressive loss of muscle mass, strength, and function in older adults. The project employed a Seemingly Unrelated Regression (SUR) model to jointly analyze three key indicators of sarcopenia, explicitly accounting for correlation among outcome

errors. This multivariate framework improved statistical efficiency and provided a more comprehensive assessment of the potential role of short-chain fatty acids in sarcopenia.

Ziyi ("Zoey") Zhang (mentors Yangbo Sun and Saunak Sen) is an MPH student in Data Science at the University of North Carolina. During her internship, Zoey worked on establishing a biomedical-focused Dataverse platform which is a centralized, web-based resource to improve the discoverability and usability of publicly available health datasets. Her primary project involved building a structured public dataset inventory and conducting a user evaluation to assess accessibility, reproducibility, and equity in data use. In parallel, she initiated a new project on DNA methylation in triple-negative breast cancer, setting up pipelines for data downloading, processing, and statistical modeling to identify potential biomarkers and characterize epigenetic patterns.

Preparations are on to welcome the 2026 cohort of interns. Applications are being accepted as we speak for next year. See more here: https://www.uthsc.edu/preventive-medicine/internships.php

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