Nazirah Binti Mohd Khairi, Ph.D.

Last updated: January 15, 2025

Current Position(s)

Assistant Professor of Biomedical Data Science
School of Applied Computational Sciences
Meharry Medical College
Nashville, Tennessee

Education

Ph.D. in Electrical Engineering, Vanderbilt University, Nashville, Tennessee	2023
MSc. in Electrical Engineering, Northwestern University, Evanston, Illinois	2011
B.S. in Electrical Engineering (cum laude), Vanderbilt University, Nashville, Tennessee	2009

Academic Appointments

Adjunct Faculty — 8/2024-Present
Department of Electrical and Computer Engineering — 8/2023-12/2023
Tennessee State University
Nashville, Tennessee

Postdoctoral Scholar — 2023-2024
Department of Electrical and Computer Engineering
Vanderbilt University
Nashville, Tennessee

Teaching Assistant — 2014-2022
Department of Electrical and Computer Engineering
Vanderbilt University
Nashville, Tennessee

Professional Positions and Experience

Research Assistant — Summer
Medical-image Analysis and Statistical Interpretation (MASI) lab — 2022
Institute of Software Integrated System (ISIS) — 2020-2021
Vanderbilt University
Nashville, Tennessee

Research Assistant — 2013
Center of Product Design and Manufacturing
University of Malaya
Kuala Lumpur, Malaysia

Test-hole Resolution (THR) Engineer — 2010-2013
Intel Technologies Sdn. Bhd.
Bayan Lepas, Penang, Malaysia

Certification and Licensure

MathWorks Certified MATLAB Associate. MathWorks. — 2024
Youth Mental Health First Aid USA. National Council for Mental Wellbeing. — 2023-2026

Professional Development

Workshops

IEEE Effective Remote Instruction: Reimagining the Engineering Student Experience. 2020
Big Data in Healthcare tutorial. IEEE SoutheastCon 2019 2019
Certificate in College Teaching (Seminar only). Vanderbilt University. 2022

Professional Memberships and Activities

IEEE 2008-present
Society of Women Engineers (SWE) 2008-2009

Educational Activities

Adjunct Faculty, Tennessee State University
EECE3600: Advanced Engineering Programming *Fall 2024*
EECE4000: Control Systems *Fall 2024*
EECE1151: MATLAB-Based Engineering Graphics *Fall 2024*
ENGR2240: MATLAB-Based Programming for Engineers *Fall 2023-2024*

Teaching Affiliate, Center for Teaching, Vanderbilt University
Teaching Assistant Orientation as Instructor *Fall 2019-2021*

Teaching Assistant, Vanderbilt University
CS1103: Introductory Programming for Engineers and Scientists *2015-2022*
EECE495-496: Senior Design Project *2015-2016*
ES140: Introduction to Engineering (Computer Engineering) *2014*

Honors and Awards

Teaching/Research Assistantship, *2014-2022*
Department of Electrical and Computer Engineering, Vanderbilt University.

Graduate Student Educational Supplies and Support Grant, *2022*
The Graduate School, Vanderbilt University.

Graduate School Travel Grant, *2019*
The Graduate School, Vanderbilt University.
Conference: IEEE SouthEastCon 2019, Hunstville, AL

ATM Q&R STAR Award, *2012*
Assembly, Test and Manufacturing, Intel Technologies Sdn. Bhd., Penang, Malaysia.
Project title: LBIST Vectors' Generation on Real Silicon

Overseas Undergraduate Program Scholarship, *2005-2009*
Public Service Department, Malaysia.

Publications

C. Gao, M. E. Kim, K. Ramadass, et al., "Brain age identification from diffusion MRI synergistically predicts neurodegenerative disease," (In submission to Imaging Neuroscience).

***N. M. Khairi**, Z. Ding, C. Chang, and D. M. Wilkes, "Visualization of spatio-temporal dynamics of brain activity avalanches in fMRI signals," (In review).*

Y. Chang, L. Xu, C. Gao, et al., "Bundle-wise functional connectivity density and fractional amplitude of low-frequency fluctuations decrease in white matter in preclinical Alzheimer's disease and are associated with Aβ levels and cognition," Feb. 2025, SPIE, San Diego, California.

M. E. Kim, K. Ramadass, C. Gao, et al., "Scalable, reproducible, and cost-effective processing of large-scale medical imaging datasets," 2025, SPIE Medical Imaging: Imaging Informatics, 2025, February, San Diego, California. (last-author).

K. Ramadass, Y. Liu, M. E. Kim, et al., "Investigating effects of air quality and weather on human brain volumes," 2025, SPIE Medical Imaging: Clinical and biomedical imaging, 2025, February, San Diego, California.

C. Gao, M. E. Kim, H. H. Lee, et al., "Predicting age from white matter diffusivity with residual learning," in Medical Imaging 2024: Image Processing, SPIE, vol. 12926, 2024, pp. 608–616.

C. Gao, Q. Yang, M. E. Kim, et al., "Characterizing patterns of diffusion tensor imaging variance in aging brains," Journal of Medical Imaging, vol. 11, no. 4, p. 044 007, 2024

A. Peterson, A. Sathe, D. Zaras, et al., "Sex, and apoe-ε4 allele differences in longitudinal white matter microstructure in multiple cohorts of aging and alzheimer's disease," bioRxiv, 2024, (In submission to Alzheimer's Dementia: The Journal of the Alzheimer's Association).

H.Xu, N. R. Newlin, M. E. Kim, et al., "Evaluation of mean shift, ComBat, and CycleGAN for harmonizing brain connectivity matrices across sites," in Medical Imaging 2024: Image Processing, SPIE, vol. 12926, 2024, pp. 493–504.

*J. Guo, **N. M. Khairi**, and D. M. Wilkes, "Exploring timing patterns around the phase transition of the brain system using resting-state fMRI," in Proceedings Volume Medical Imaging 2023: Image Processing, 2023.*

*J. L. de Ramón Ruiz and **N.M.Khairi**, Learning in two timezones: International students' experiences during COVID-19, Retrieved online on October 26, 2022, Nov. 2020. url: https://cft.vanderbilt.edu/2020/11/learning-in-two-time-zones-international-students- experiences-during-covid-19/.*

*C. S. Bell, **N. M. Khairi**, Z. Ding, and D. M. Wilkes,"Bayesian framework for robust seed-based correlation analysis," Medical Physics, vol. 46, no. 7, pp. 3055–3066, Jul. 2019.*

***N. M. Khairi**, D. M. Wilkes, and Z. Ding, "Modified Principal Component Analysis in sliding-windowed fMRI data," in SoutheastCon 2019, 2019.*

*N. Ahmad, R. Ariffin R. Ghazilla, **N. M. Khairi**, and Vijayabaskar Kasi, "Reviews on Various Inertial Measurement Unit (IMU) Sensor Applications," International Journal of Signal Processing Systems, vol. 1, no. 2, pp. 256–262, 2013.*

Published Abstracts and Presentations

K. Schilling, M. Kim, M. Li, et al., "How much, and in which directions, do subjects move during MRI scans?," May 2024, [Presented at the Annual Meeting of the International Society for Magnetic Resonance in Medicine. Abstract 7592. Poster presentation (2024)].

Oral Presentations

***N. M. Khairi**, D. M. Wilkes, and Z. Ding, "Modified Principal Component Analysis in sliding-windowed fMRI data," in SoutheastCon 2019, 2019.*

Other Scholarly Products

Reviewer, MICCAI Computational Diffusion MRI (CDMRI) Workshop 2024

Professional Community Activities

Technical Volunteer, Nashville International Academy	2023-present
eMentor for a Middle School student, TryEngineering	9/2021-6/2022 9/2024-present
Volunteer for Engineering Day, Vanderbilt University	11/26/2019