KHUE B. TRAN

khuebtran03@gmail.com | +84 888 683 503 | linkedin.com/in/tranbaokhue/ | https://github.com/tranbaokhue

EDUCATION

Kenyon College Aug 2021 - May 2025
Bachelor of Arts, *Mathematics (Statistical/Data Science Track) and Music Major* Gambier, OH

- **GPA:** 3.98/4.0 | *summa cum laude*
- **Scholarships:**
  - Music Merit Scholarship (2021-2025)
  - The Elmer A. Graham Endowed Scholarship, which covers full tuition for senior year (2024)
- **Honors and Awards:**
  - Solomon R. S. Kasper Prize for outstanding creativity and ingenuity in mathematics and computer science (2025)
  - Department of Mathematics and Statistics Risk-Taker Award (2025)
  - Gabriel A. Ben-Meir Senior Award in Music (2025)
  - Department of Mathematics and Statistics Community-Builder Award (2024)
  - Kathleen "Kay" Locke Community Service Prize in Music (2024)
  - Wendell D. Lindstrom Prize for Great Promise in Mathematics/Statistics (2022)
  - Merit List (every semester)
- **Honors Societies:**
  - Phi Beta Kappa
  - PI Mu Epsilon
- **Relevant coursework:** Calculus I-III, Nonparametric Statistics Research, Linear Algebra, Data Analysis, Statistical Computing with R, Bayesian Statistics, Applied Linear Algebra, Probability, Mathematical Statistics, Real Analysis I & II.

EXPERIENCE

Statistics Researcher May 2024 - Present
School of Mathematics and Statistics, UNSW Sydney, Australia (*Hybrid*)

- Worked on improving R Package CompQuadForm with arbitrary precision with C/C++ libraries
- Conducted cited reference literature review for the key paper with comprehensive information from Web of Science and Scopus

Statistics Researcher/Summer Science Scholar 2023 January 2023 - Present
Department of Mathematics and Statistics, Kenyon College Gambier, OH

- Co-wrote a paper as first author to be submitted to the R Journal (Q2)
- Simulated null distributions for two new nonparametric test statistics in 150 different balanced observations settings
- Conducted 200+ Monte Carlo power studies to compare the empirical powers of proposed tests with existing procedures
- Extensively reviewed the literature on nonparametric procedures in two-way factorial design
- Enhanced previous codes' efficiency with parallel processing, reducing the simulation runtime by up to seven-fold

Mathematics and Statistics Lead Tutor September 2022 - May 2025
Math and Science Skills Center (MSSC), Kenyon College Gambier, OH

- Instructed over 30 students in Multivariable Calculus with visualizing surfaces, differentiation, optimization, and integration
- Guided students in Data Analysis through theoretical statistical models, brainstorming analysis project, visualizing data
- Troubleshot R and/or Maple coding errors and supported students on various projects, ie. regression, optimization, etc.
- Implemented metacognitive approaches in tutoring sessions to motivate critical thinking, problem solving, and boost self-efficacy

CONTRIBUTED TALKS AND POSTERS

"Where is Markov heading? A Markov Chain's Stationary Distribution"

- Senior Mathematics & Statistics Poster Symposium, Gambier, OH – December 3, 2024 *(poster)*

"Comparing Nonparametric Tests for Interaction in Two-way ANOVA with Balanced Replications"

- Electronic Undergraduate Statistics Research Conference (eUSR) – November 28, 2024
- Summer Science Scholars Research Showcase, Gambier, OH. October 13, 2023 (*poster*)
- WIMIN (Women in Mathematics in New England) Conference 2023, Northampton, MA. September 23, 2023

MANUSCRIPT & PREPRINT

Tran, B. K., Wagaman, A. S., Nguyen, A., Jacobson, D., & Hartlaub, B. (2024). Nonparametric tests for interaction in two-way ANOVA with balanced replications. *arXiv preprint arXiv:2410.04700*.

PROJECTS

Beer and Wine Worldwide Consumption/Supply – Data Wrangling Presentation

- Built new functions in R to scrape data from websites, join multiple datasets, and generate plots with *tidyverse* library
- Identified the most fitting models for wine and beer production for 179 countries (Adjusted R-squared: 0.9577 and 0.9739 correspondingly) through exhaustive search and forward stepwise regression
- Employed the *patchwork* library to visualize and overlay data onto world map, enhancing geographic trends

Arsenic Poisoning Investigation Consulting Project

- Conducted comprehensive Bayesian analysis to assess the probability of each suspect being the poisoner, accounting for variations in arsenic metabolization from different sources
- Analyzed the lab results and showed how the positional trends in the evidence vector influence the posterior distribution

Global Maritime Pirate Attacks Bootstrap and Simulation Studies

- Employed ordinal logistic regression to anticipate attack types on ships, leveraging both numerical and indicator variables
- Implemented bootstrap resampling techniques to attain a reliable approximation of the misclassification error for the model
- Simulated the number of failed attempts before the first successful hijack and the probability of a hijack given shore distance

SKILLS

Languages: English (fluent) and Vietnamese (native)
Technical Skills: Data wrangling and analysis, data visualization, Monte Carlo simulations, multivariate and logistic regression, Bayesian modeling and inference, nonparametric procedures, time series modeling using ARIMA, Multivariate Analysis of Variance, R package building, parallel computing, arbitrary precision arithmetic, and proficiency in LaTeX, Beamer, and Github.
Programming Experience in: R, MATLAB, C/C++, Maple, Python, and Wolfram.