AMELIA H. TRAN

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EDUCATION

University of Pennsylvania — Philadelphia, PA
M.S. in Biostatistics — Expected 2023

Mount Holyoke College — South Hadley, MA
B.A. in Statistics, Data Science, *Summa Cum Laude* — May 2021

PROFESSIONAL EXPERIENCE

University of Pennsylvania Perelman School of Medicine — Philadelphia, PA
Graduate Research Assistant — *Sep 2021 -*
Supervisor: Douglas Schaubel, Ph.D. Department of Biostatistics and Epidemiology

- *Project 3*: Compare graft survival probability and cumulative hazards of graft failure between kidney transplants with hepatitis C virus HCV+ and HCV- donors to HCV- recipients
- *Project 2*: Apply novel prognostic score-based weighting method to estimate center effects in terms of excess differences in graft survival probability of post-kidney transplant patients
- *Project 1*: Model delayed graft function (DGF) and time to graft failure (GF) among post-kidney transplant patients with logistic and Cox regression to evaluate center effects

Institute for Pure and Applied Mathematics — Los Angeles, CA
Applied Math Research Fellow — *Jun 2021 – Aug 2021*
Supervisors: Laurent White, Ph.D. (AMD Research) and Kyung Ha, Ph.D. (UCLA)

- Worked for Advanced Micro Devices (AMD) to develop physics-informed neural network (PINN) models in Python using Keras and TensorFlow to simulate wave propagation
- Designed optimal network architecture by embedding physics constraints, i.e. PDEs of wave equation and initial/boundary conditions, and sampling unlabeled input values
- Extrapolated in time for acoustic wave and in space from different source locations

Memorial Sloan Kettering Cancer Center — New York, NY
Biostatistics Research Fellow — *Jun 2020 – May 2021*
Supervisors: Audrey Mauguen, Ph.D. Department of Epidemiology and Biostatistics

- Evaluated association between biomarker bilirubin and overall survival in Primary Biliary Cirrhosis with different approaches for censored data, i.e. Cox proportional hazards model, time-dependent Cox and Joint Model for longitudinal and survival data
- Performed data manipulation in R, summary statistics and visualizations with Kaplan-Meier curves and spaghetti plots, and diagnostic tests with Schoenfeld residuals
- Completed project as honors thesis under the guidance of Dr. Marie Ozanne from MHC

Mount Holyoke College South Hadley, MA
Undergraduate Research Assistant *Jun 2019 – May 2020*
Supervisor: Evan Ray, Ph.D. Department of Mathematics and Statistics

- Contributed to the *ncopula* package to calculate cumulative distribution function, probability density function, and log-likelihood to develop hierarchical Archimedean copula models
- Included auxiliary functions to transform the parameters within appropriate copula bounds
- Designed comprehensive unit tests to examine the package functionality and provided reproducible documentation with relevant mathematical formulae

HONORS AND AWARDS

- Phi Beta Kappa, *Theta Chapter of Massachusetts* 2021
- Mu Sigma Rho, *The Boston Chapter of the American Statistical Association* 2021
- Five College Statistics Prize, *Five College Statistics Program* 2021
- Mary Lyon Scholar, *Mount Holyoke College* 2021
- Global Competence Award, *McCulloch Center for Global Initiatives* 2021
- Electronic Undergraduate Statistics Research Best Video Presentation Winner, *ASA* 2020
- George Cobb Statistics Prize for Excellence in Statistics, *Mount Holyoke College* 2020
- Lynk Fellowship for Qualied Research Position, *Mount Holyoke College* 2019
- Saintonge Prize for Superior Achievement in French, *Mount Holyoke College* 2019
- Sylvia Sherk Hubbell Book Prize for Excellence in French, *Mount Holyoke College* 2018
- Sylvia Sherk Hubbell Summer Scholarship, *Mount Holyoke College* 2018

PUBLICATIONS

* indicating equal contribution

1. Davini D*, Samineni B*, Thomas B *, **Tran AH***, Zhu C*, Ha K, Dasika G, White L (2021). Using physics-informed regularization to improve extrapolation capabilities of neural networks. In *35th Conference on Neural Information Processing Systems (NeurIPS).*
2. **Tran AH** and Ozanne MV (2021). Statistical Analysis of the Association between Bilirubin and Survival in Primary Biliary Cirrhosis. *Mount Holyoke College Mathematics and Statistics Department Senior Thesis.*

SELECTED PRESENTATIONS

Contributed Talks

- Using physics-informed regularization to improve extrapolation capabilities of neural networks, *Joint Mathematics Meetings*, April 2022

- Accelerating scientific applications with deep neural networks, *Research in Industrial Projects for Students (RIPS) Research Symposium*, Institute for Pure and Applied Mathematics, University of California, Los Angeles, CA, August 2021
- Association between bilirubin and survival in Primary Biliary Cirrhosis, *Honors Thesis Defense*, Mount Holyoke College Mathematics and Statistics Department, South Hadley, MA, May 2021
- Association between bilirubin and survival in Primary Biliary Cirrhosis, *Electronic Undergraduate Statistics Research Conference (eUSR)*, The Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) and the American Statistical Association (ASA), November 2020
- Association between bilirubin and survival in Primary Biliary Cirrhosis, *Quantitative Sciences Undergraduate Research Experience (QSURE) Summer Research Symposium*, Memorial Sloan Kettering Cancer Center, New York, NY, August 2020

Contributed Posters

- Using physics-informed regularization to improve extrapolation capabilities of neural networks, *Joint Mathematics Meetings*, April 2022
- Using physics-informed regularization to improve extrapolation capabilities of neural networks, *4th Workshop on Machine Learning and Physical Sciences at the 35th NeurIPS Conference*, December 2021

TEACHING EXPERIENCE

Mount Holyoke College

- Teaching Assistant, STAT 343: Mathematical Statistics — Spring 2021
- Teaching Assistant, COMSC 312: Algorithms — Spring 2021
- Teaching Assistant, STAT 242: Intermediate Statistics — Spring 2020
- Teaching Assistant, COMSC 205: Data Structures — Fall 2019
- Teaching Assistant, MATH 101: Single Variable Calculus — Spring 2019

PROFESSIONAL SERVICE

Invited Panelist, Graduate School Information Session — 2022
Mount Holyoke College Chapter of the Association for Women in Mathematics

Student Liaison, Department of Mathematics and Statistics — 2020 – 2021
Mount Holyoke College

Co-President, French Club — 2020 – 2021
Mount Holyoke College

Board Member, HackHolyoke (24-hour hackathon) — 2020
Mount Holyoke College

PROFESSIONAL MEMBERSHIPS

American Statistical Association (ASA)
Association for Women in Mathematics (AWM)
International Biometric Society Eastern North American Region (ENAR)

TECHNICAL SKILLS

Statistical Software: R, Stata, SAS, SPSS
Computing : Python, Java, SQL
Technologies : Eclipse, Git, LaTeX, Jupyter Notebook