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* — 2021

GRADUATE COURSEWORK

Probability, Statistical Methods and Data Analysis, Design of Interventional Studies, Design of Observational Studies, Statistical Inference (Spring 2022), Linear Models and Generalized Linear Models (Spring 2022), Statistical Methods for Categorical and Survival Data (Spring 2022)

PROFESSIONAL EXPERIENCE

Graduate Research Assistant — Sept 2021 –
Department of Biostatistics and Epidemiology, University of Pennsylvania, Philadelphia, PA
Supervisor: Douglas Schaubel, Ph.D.

- Peruse literature in recent developments of novel statistical methodologies for time-to-event and longitudinal data in end-stage kidney and liver disease related studies
- Performed data cleaning, data description, and formal statistical analysis to predict delayed graft function (DGF) and time to graft failure in kidney transplantation for transplant centers

Research Fellow — June 2021 – Aug 2021
Institute for Pure and Applied Mathematics, University of California, Los Angeles, CA
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 models (PINN) in Python using Keras and TensorFlow to simulate the wave equation efficiently
- Designed optimal network architectures by embedding physics constraints into objective function, varying network parameters, and employing cross-validation to enhance extrapolation
- Sampled unlabeled data points and learnt wave propagation from different source locations
- Communicated results through weekly meetings to industrial sponsor and academic mentor

Research Assistant — Sept 2020 – May 2021
Department of Mathematics and Statistics, Mount Holyoke College, South Hadley, MA
Supervisor: Marie Ozanne, Ph.D.

- Conducted a thorough literature review on statistical research in Primary Biliary Cirrhosis
- Incorporated the cirrhosis research into an honors project and wrote a 90+ page senior thesis
- Studied LASSO, ridge, and elastic net regularization techniques for variable selection, and methods for competing risks, i.e. cause-specific and subdistribution hazards in survival analysis
- Performed statistical analysis to model the progression of Visceral Leishmaniasis, a neglected tropical disease, and Wilcoxon nonparametric tests to study the effect of lamb massage

Research Fellow June 2020 – Aug 2020
Department of Epidemiology and Biostatistics, Memorial Sloan Kettering Cancer Center, NY
Supervisor: Audrey Mauguen, Ph.D.

- Investigated the association between biomarker serum bilirubin and survival in Primary Biliary Cirrhosis with Cox Proportional Hazards, Time-Dependent Cox and Joint Model
- Produced data visualizations with Kaplan-Meier survival curves and spaghetti plots
- Implemented algorithms in R to extract time interval endpoints and impute missing data
- Conducted sensitivity analysis and examined correlation structures to detect potential outliers
- Attended weekly discussion seminars in research ethics and lectures on quantitative sciences

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

- Contributed to the *ncopula* package to calculate cumulative distribution function, probability density function, and log-likelihood for hierarchical Archimedean copulas of different families
- Implemented S3 object-oriented programming in R to represent copula and perform MLE
- Included helper functions to transform the parameters within appropriate copula bounds
- Carried out comprehensive unit tests to examine functionality of the *ncopula* package
- Gained extensive experience in R programming, and collaborative workflow on GitHub

AWARDS AND HONORS

Phi Beta Kappa Honor Society 2021
Theta Chapter of Massachusetts

Mu Sigma Rho Statistics Honor Society 2021
The Boston Chapter of the American Statistical Association

Five College Statistics Prize 2021
Five College Statistics Program

Mary Lyon Scholar 2021
Mount Holyoke College

Global Competence Award 2021
McCulloch Center for Global Initiatives, Mount Holyoke College

Electronic Undergraduate Statistics Research Best Virtual Video Presentation 2020
The Consortium for the Advancement of Undergraduate Statistics Education
and the American Statistical Association

George W. Cobb Statistics Prize for Excellence in Statistics 2020
Department of Mathematics and Statistics, Mount Holyoke College

Lynk Universal Application Fellowship for Qualified Research Position 2019
Mount Holyoke College

Paul Saintonge Prize for Superior Achievement in French 2019
French Department, Mount Holyoke College

Sylvia Sherk Hubbell Class of 1939 Book Prize for Excellence in French 2018
French Department, Mount Holyoke College

Sylvia Sherk Hubbell Class of 1939 Summer Scholarship 2018
French Department, Mount Holyoke College

PUBLICATIONS

* indicating equal contribution

Davini D*, Samineni B*, Thomas B*, **Tran AH***, Zhu C*, Ha K, Dasika G, White L. "Using physics-informed regularization to improve extrapolation capabilities of neural networks". Submitted to *35th Conference on Neural Information Processing Systems (NeurIPS) workshop on Machine Learning and Physical Sciences*, 2021

Tran AH, Ozanne, M. "Statistical Analysis of the Association between Bilirubin and Survival in Primary Biliary Cirrhosis". *Mount Holyoke College Mathematics and Statistics Department Senior Thesis.*

ORAL PRESENTATIONS

* indicating equal contribution

Davini D*, Samineni B*, Thomas B*, **Tran AH***, Zhu C*, Ha K, White L. "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

Davini D*, Samineni B*, Thomas B*, **Tran AH***, Zhu C*, Ha K, White L. "Accelerating Scientific Applications with Deep Neural Networks", *RIPS-IPAM Site Visit Student Presentation*, Advanced Micro Devices Inc., Santa Clara, CA, August 2021

Tran AH, Mauguen A. "Statistical Analysis of the Association between Bilirubin and Survival in Primary Biliary Cirrhosis", *Honors Thesis Defense*, Department of Mathematics and Statistics, Mount Holyoke College, South Hadley, MA, May 2021

Tran AH, Mauguen A. "Statistical Analysis of the Association between Bilirubin and Survival in Primary Biliary Cirrhosis", *Mount Holyoke College Senior Symposium*, South Hadley, MA, April 2021

Tran AH, Mauguen A. "Statistical Analysis of the 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

Tran AH, Mauguen A. "Statistical Analysis of the Association between Bilirubin and Survival in Primary Biliary Cirrhosis", *Mount Holyoke College Learning through Application: LEAP Symposium*, South Hadley, MA, October 2020

Tran AH, Mauguen A. "Statistical Analysis of the Association between Bilirubin and Survival in Primary Biliary Cirrhosis", *Quantitative Sciences Undergraduate Research Experience (QSURE) Summer Research Symposium*, Department of Epidemiology and Biostatistics, Memorial Sloan Kettering Cancer Center, New York, NY, August 2020

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

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