

Tanner Barbour

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EDUCATION

Virginia Tech, Blacksburg, VA

May 2023

Bachelor of Science in Human Nutrition, Foods, and Exercise

Major: Human Nutrition, Foods, and Exercise

RELEVANT COURSEWORK

- Human Anatomy and Physiology, Biology, Chemistry, Medical Terminology
- Biological Statistics, Elementary Calculus
- Human Development, Introduction to Psychology, Nutrition Across the Lifespan, Disabilities Studies

TECHNICAL STRENGTHS

Languages: Python, R, SAS, SQL
Technologies: HTML5, CSS, MS Office, Tableau, Jupyter, TriNetX, AWS
Databases: REDCap, PostgreSQL
Version Control: GitHub
Packages: TensorFlow, Pandas, NumPy, Matplotlib, Seaborn, NLTK, Sklearn, ggplot2, dplyr

PROFESSIONAL EXPERIENCE

Virginia Tech Center for Biostatistics and Health Data Science

Data Scientist

September 2023 – Present

- Collaborating with investigators to design clinical studies in the health sciences
- Writing statistical methods for grant proposals, manuscripts, and summary reports
- Generating statistical analyses to support doctoral student and faculty research
- Engaging in sophisticated data wrangling, including claims data and electronic health records
- Conducting appropriate statistical analyses using statistical languages (SAS, R), including summarizing, and disseminating analytic findings
- Conducting research and applying novel analytic and statistical methods as appropriate
- Building databases and surveys in REDCap to support collaborative projects.

Data Analyst

May 2023 – September 2023

- Design studies and ensure proper study methodology
- Conduct data management and analysis tasks using software tools such as SAS and R
- Assist in the preparation of manuscripts for publication, ensuring adherence to journal guidelines and standards
- Support the creation of clinical study reports and the generation of randomization schemes
- Provide accurate and timely statistical summaries and analyses
- Maintain documentation and organize study files, ensuring compliance with regulatory and quality standards.
- Mentored undergraduate students from the CUBE 2023 summer program

Research Assistant

November 2022 - May 2023

- Collaborated with CBHDS and the Sanghani Center for Artificial Intelligence to create a logistic regression model for DRG code prediction
- Generated context vectors for discharge summaries utilizing an embedding model and plotted their performance for predicting principal diagnoses, correct major diagnostic categories, and severity levels
- Filtered down a 2.08M-row table into 26.2k rows of interest. Split each ~12,000-length clinical text string into 15 unique tokenized sections using custom functions and NLTK

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- Created visualizations for discoveries utilizing Matplotlib, and Seaborn as well as presented the findings in PowerPoint
- Worked with EHR, administrative claims data, and coding ontologies (ICD & DRG)

University of Hawaii
Biostatistics Consultant

October 2023 – Present

SERVICE TO STUDENTS

Sponsor, CMDA Capstone Project

September 2023 – December 2023

Revealing Recent Transmission Patterns and Evolutionary Trends of Salmonella Enterica

STUDENT ORGANIZATIONS AND ACTIVITIES

Machine Learning and Artificial Intelligence Club

Member

December 2020 - May 2023

- Worked with club members to create projects and learn about:
 - Neural Networks (RNN, LSTM, GRU, Transformers, GAN, GNN)
 - Algorithms (LR, KNN, RF, SVM, K-Means Clustering, PCA)

PUBLICATIONS

Azziza A.B., Ji W., **Barbour T.B.**, Lozano A.J., Hanlon A.L. BESI: Behavioral and Environmental Sensing and Intervention for Dementia Caregiver Empowerment – Phase 3. *American Journal of Geriatric Psychiatry* (in progress)

Hajjaligol D., Kaknes D., **Barbour T.B.**, Yao D., North C., Sun J., Liem D., Wang X. DRGCODER: Explainable Clinical Coding for the Early Prediction of Diagnostic-Related Groups *EMNLP* (in progress)

Pellegrin K.L., **Barbour T.B.**, Lozano A.J., Hanlon A.L. Social Vulnerability Predictors of Acute Care Use in Rural Hawaii: Guiding Local Efforts to Achieve Health Equity *Journal of Health Care for the Poor and Underserved* (in progress)

Kaknes D.A., **Barbour T.B.**, Ji W., Naylor M.D., Hanlon A.L. Interventional Analytics in Skilled Nursing Facilities Associated with Reduced Readmissions *The American Journal of Managed Care* (in progress)