

Michael Wilson

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Education

Florida State University

Ph.D., Statistics

Expected 12/2024

GPA: 3.72

Humboldt State University

Bachelor of Arts, Applied Mathematics

5/2019

GPA: 3.46

Project Experience

Fused Gromov-Wasserstein Variance Decomposition with Linear Optimal Transport

[Draft/ GitHub](#)

- Developed methods to quantify the quality of Linear Optimal Transport embeddings
- Applied ML to Linear Optimal Transport embeddings of DTMRI images from HCP and ADNI
- Achieved >80% classification accuracy in classifying Alzheimers in some ROI in ADNI
- Demonstrated that low dimensional Linear Optimal Transport embeddings can be used to efficiently encode information about high-dimensional imaging data

A Wasserstein-type Distance for Gaussian Mixtures of Shapes

[arXiv / GitHub](#)

- Extended theory of Wasserstein-type distances for Gaussian Mixtures to non-linear domains
- Developed methods for statistical modelling of shape distributions
- Used methods to detect statistically significant change point in nanoparticle manufacturing process
- Accepted to SIAM Imaging Sciences

Work Experience

National Institutes of Health, Clinical Center, Department of Nuclear Medicine

6/2019-8/2019

Research/Data Analyst Intern

- Wrote R code to implement a 3-compartment pharmacokinetic model of 18FDG uptake
- Built statistical models to predict change in inflammation between scans

Gahtan Lab, Humboldt State University

1/2017-6/2018

Research Assistant

- Conducted feature extraction and statistical analysis of calcium imaging recordings of larval zebrafish
- Abstract was accepted for a poster presentation at the Society for Neuroscience 2018 conference

Presentations

AMS Southeastern – Special Session on Geometry and Symmetry in Data Science

3/2024

Slides: [Linear Optimal Transport for Gaussian Mixtures](#)

JSM 2024 – New Approaches to the Analysis of Modern Imaging Modalities

8/2024

Slides: [A Wasserstein-type Distance for Gaussian Mixtures](#)

Technical Skills

Programming Languages: Python, SQL, MATLAB, R

Research Interests: Causal Inference, Domain Adaptation, Machine Learning, Optimal Transport, Statistical Shape Analysis