# JAMES BUENFIL

Curriculum Vitae/Resume
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## EDUCATION

**University of Washington, Seattle** *Oct. 2020 - Present*
PhD Statistics

**Relevant Coursework:**
**Theory:** Advanced Probability Theory (MATH 521), Advanced Theory of Statistical Inference (STAT 581, 582, 583)

**Methods:** Statistical Learning: Modeling, Prediction, and Computing (STAT 535), Multivariate Analysis (STAT 542), Advanced Regression Methods for Independent Data (STAT 570), Advanced Regression Methods for Dependent Data (STAT 571)

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**University of Wisconsin, Madison** *Aug. 2016 - May 2020*
B.S. Applied Mathematics Engineering Physics

**Relevant Coursework:**
**Computer Science:** Intro. to Optimization (CS 524), Intro. to Algorithms (CS 577), Numerical Linear Algebra (CS 513), Numerical Analysis (CS 514)
**Statistics:** Intro. to Stochastic Processes (STAT 632), Intro. to Statistical Inference (STAT 610)

## EXPERIENCE

**Grad. Research Assistant, with Eardi Lila (Assistant Prof. in Biostat. Dept. UW-Seattle)**
*May 2022 - Present*

- Current project is related to using Riemannian Functional Principal Component Analysis in conjunction with Sparse Canonical Correlation Analysis to analyze the relationship between regional brain curve data and demographic data.

**Grad. Research Assistant, with Marina Meila (Professor in Stat. Dept. UW-Seattle)**
*Oct 2020 - Present*

- Current project is related to exploration of high dimensional spaces through the identification of the boundary of point cloud data sampled from manifolds with boundary. Developing novel theory and algorithms for this purpose.
- Developed a novel molecular dynamics enhanced sampling method called "Tangent Space Least Adaptive Clustering," which resulted in a first-author paper accepted for poster presentation at the ICML 2021 Workshop on Unsupervised Reinforcement Learning.

**Independent Study with Garvesh Raskutti (Assistant Prof. in Stat. Dept. UW-Madison)**
*May 2019 - Jan 2020*

- On a large amino-acid sequence dataset, applied classification methods such as Naive Bayes, logistic regression, and the PUlasso algorithm of Song and Raskutti's "PUlasso: High-dimensional variable selection with presence-only data."

**Independent Study with Benjamin Peherstorfer (then Assistant Prof. in Mech. Eng. Dept. UW-Madsion)** *Sep. 2017 - June 2018*

- Through Informatics Skunkworks (Machine Learning Group at UW-Madison). Ran finite element method simulations of a Navier-Stokes fluid flow problem. Polynomialized and quadraticized a tubular reactor PDE and ran numerical simulations.
- Presented on a paper called "Nonintrusive Learning of Dynamical-System Models from Data" at Skunkworks meetings.

**Research Assistant, Mcdermott Physics Lab UW-Madison** *Feb. 2017 - Aug. 2017*

- Assisted with testing the performance of black-box optimization algorithms. Performed a theoretical calculation of the impedance of a Josephson junction transmission line.

**Teaching Assistant, DATA 556, Intro. to Statistics and Probability** *Sept. 2022 - Present*

- Duties include holding discussion sections for homework assignments, grading homework assignments and exams, managing the course website, and regularly answering student questions.

## PUBLICATIONS

**Buenfil, James,** Samson J. Koelle, and Marina Meila. "Tangent Space Least Adaptive Clustering." ICML 2021 Workshop on Unsupervised Reinforcement Learning. 2021.

## SKILLS AND OTHER

**Programming Languages:**
Highly proficient: R, Python, MATLAB, Java, Julia, LaTeX

**Foreign Languages:**
English (native), Spanish (advanced)

Co-organizer of Geometric Data Analysis Reading Group. Link to website

## ACADEMIC AWARDS

2020-22 GO-MAP Graduate Excellence Award
2020-22 ARCS Foundation Scholar