JOSEPH LAVOND

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INTERNSHIPS

Cisco - San Jose, CA

Ph.D. Intern *June 2023 - Aug 2023*
- Lead research efforts to improve the diversity of samples produced by generative artificial intelligence
- Designed architecture changes that prevent the occurrence of mode collapse in Generative Adversarial Networks (GANs)

Elevance Health, Inc. (Formerly Anthem) - Indianapolis, IN

Graduate Info Technology Intern *June 2022 - Aug 2022*
- Implemented custom PyTorch semi-supervised Bayesian anomaly detection approach on Amazon Web Service (AWS) to identify up-coded Evaluation & Management (E/M) claims
- Received Impact award for end-of-summer technical presentation to senior management
- Participated in Agile Scrum model development process using Jira of a Fortune-30 company
- Created modeling data set pipeline for 60M row database using PySpark SQL in Jupyter on Kubeflow

Blue Cross Blue Shield of Arizona - Phoenix, AZ

Actuarial Services Intern *Apr 2020 - Aug 2020*
- Spearheaded the company-wide projection of membership for all lines of business
- Learned VBA to automate monthly updates to company forecasts within Microsoft Excel
- Automated data collection using process flows in SAS and SQL queries in Microsoft Access

EDUCATION

University of North Carolina - Chapel Hill, NC

Doctor of Philosophy: Statistics and Operations Research *Aug 2020 - May 2025*
- Funded through NSF-funded grant to add research to theory and application of networks

California Polytechnic State University - San Luis Obispo, CA

Bachelor of Science: Statistics *Sep 2016 - Mar 2020*
- 3.99 GPA, Summa Cum Laude, Academic Excellence Award
- Founder and Secretary of the Actuarial Society Club
- Member of Mu Sigma Rho, the US National Statistics Honors Society

RESEARCH

University of North Carolina - Chapel Hill, NC

Research under Dr. Yao Li *Aug 2021 - Present*
- Development of methodology to improve the robustness and data privacy of Neural Networks
- Proposed Meta-Learning approach to model aggregation for Personalized Federated Learning (Submitted to ICLR 2024)
- Created novel defense against Backdoor Attacks in Federated Learning
- PyTorch implementation and multi-GPU training of computer vision models on Linux clusters

California Polytechnic State University - San Luis Obispo, CA

Statistical Consultant *Sep 2019 - Aug 2020*
- Provided SAS mixed modeling analyses to understand the relationships between early life factors and childhood obesity as part of a NIH-funded $2M grant
- Coauthored publication in the Journal of Maternal and Child Nutrition

Frost Summer Research Program 2019 *May 2019 - Sep 2019*
- Manipulated the Surveillance, Epidemiology, and End Results (SEER) database, containing over 20 million cancer cases within the United States, using SAS
- Analyzed SEER data with KM and COX survival models using R
- Constructed an interactive R Shiny app for cancer patient use, taking demographic and diagnosis information as inputs, and providing a prognosis

SKILLS

Coursework
- Machine Learning: Gradient Boosting, Bagging, Bootstrapping, Regularization, Dimension Reduction
- Deep Learning: Semi-Supervised, Self-Supervised, and Transfer Learning for NLP and Computer Vision

Programming Languages
- SQL (Snowflake, HUE, Microsoft Access)
- Python (PyTorch, SciKit-Learn, PySpark, Pandas, NumPy, Matplotlib)
- R (caret, tidyverse, ggplot2, dplyr, purr, stringr, shiny)
- Other: SAS, Microsoft Excel

Misc. Git (GitHub, Bitbucket), Linux (Cluster Computing, GPU Acceleration), Vim, Project Jupyter, Kubeflow