

# Joe Lavond

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## EDUCATION

### University of North Carolina

*Ph.D. Statistics and Operations Research*

*M.S. Statistics and Data Science*

Chapel Hill, NC

*Aug. 2020 – May 2025*

*May 2024*

### California Polytechnic State University

*B.S. Statistics*

San Luis Obispo

*Sep. 2016 – Mar. 2020*

## EXPERIENCE

### Graduate Data Science Intern

*Red Ventures*

June 2024 – Aug. 2024

*Fort Mills, SC*

- Implemented offline model-based Q-Learning, a reinforcement learning algorithm, demonstrating a typical 5% increase in revenue per session, translating to an estimated \$5M in additional business revenue
- Developed and integrated over 6K lines of production code into a simulation environment focused on Markov Decision Processes for website traffic
- Established a streamlined pipeline leveraging historical production data to generate simulations, resulting in a substantial increase in both the quantity and complexity of simulations, leading to robust solutions

### Ph.D. Intern

*Cisco*

June 2023 – Aug. 2023

*San Jose, CA*

- Evaluated changes to prevent the occurrence of mode collapse in Generative Adversarial Networks, where samples are not diverse and did not learn to cover the training distribution
- Developed a more efficient way to train generative models with differential privacy at scale, enabling statistical guarantees for the protection of private training data

### Graduate Info Technology Intern

*Elevance Health, Inc. (Formerly Anthem)*

June 2022 – Aug. 2022

*Indianapolis, IN*

- Implemented custom PyTorch semi-supervised Bayesian anomaly detection approach on Amazon Web Service (AWS) to identify exaggerated claims by providers for services offered
- Received award for end-of-summer presentation to senior management
- Created modeling data set pipeline for 60M row database using PySpark SQL in Jupyter on Kubeflow

### Actuarial Services Intern

*Blue Cross Blue Shield*

Apr. 2020 – Aug. 2020

*Phoenix, AZ*

- Spearheaded the company-wide projection of membership for all lines of business
- Learned VBA to automate monthly updates to company forecasts within Microsoft Excel as well as data collection using process flows in SAS and SQL queries in Microsoft Access

### Frost Summer Research Program

*California Polytechnic State University*

May 2019 – Sep. 2019

*San Luis Obispo, CA*

- Created an R Shiny app for cancer patient use, taking demographic and diagnosis information as input and providing estimated prognoses for various treatments based on KM and COX survival models.
- Manipulated with SAS the SEER database of 20M cancer cases

## PUBLICATIONS

**FedDecay: Adapting to Data Heterogeneity in Federated Learning With Gradient Decay**, Joseph Lavond, Minhao Cheng, Yao Li, Under Review

**Trusted Aggregation (TAG): Backdoor defense in Federated Learning**, Joseph Lavond, Minhao Cheng, Yao Li, In NeurIPS Workshop on Federated Learning: Recent Advances and New Challenges, 2022

## SKILLS

**Technical:** Languages (*Python, R, SQL, SAS*), Machine Learning (*PyTorch, scikit-learn, Tensorflow, Keras, caret*), Analysis (*Pandas, NumPy, SciPy, Tidyverse*), Visualization (*Matplotlib, Seaborn, ggplot2*), Other (*Git, Linux*)

**Soft:** Communication (*data storytelling, technical documentation*), Adaptability (*agile methodologies, quick learner, flexible in dynamic environments*), Time Management (*prioritization, multi-tasking*), Teamwork (*collaborative projects, cross-functional teams, leadership skills*)