# Zhuoli Jin

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## Skills

**SQL**
JOIN, GROUP BY, CTE, subqueries, window functions, CASE WHEN, aggregate functions, etc.

**R**
tidyverse, ggplot2, forecast, glm, shiny, random forest, caret, etc.

**Python**
NumPy/SciPy, Pandas, Matplotlib, scikit-learn, seaborn, etc.

**SAS**
Proc reg, Proc logistic, Proc sql, Macro, Proc SGplot, SAS enterprise guide, etc.

**Machine Learning**
Generalized Linear Models, Time series, Decision trees, Clustering, XGboost, MCMC, SVM, etc.

**GitHub**
Version control, code collaboration, reproducible pipelines using Jupyter and R Markdown

## Publications

**Incorporating climate change projections into risk measures of index based insurance,**
*Zhuoli Jin, Robert J. Erhardt*

**Beyond Skip Connection: Pooling and Unpooling Design for Elimination Singularities,** *Chengkun Sun, Jinqian Pan, Zhuoli Jin, Russell Stevens Terry, Jiang Bian, and Jie Xu*

## Projects

**Deep Learning Model Implementation – PoolSkip Project**

- • Led theoretical derivation and design of novel pooling and unpooling operations for deep neural networks, addressing elimination singularities through innovative model structures.
- Co-authored the research paper (*Beyond Skip Connections: Pooling and Unpooling Designs for Elimination Singularities*), contributing key mathematical formulations and theoretical analysis.
- Supported reproducibility by collaborating on public release of code and models on GitHub.

## Profile

Ph.D. candidate in **Financial Mathematics & Statistics** with deep experience in **model development**, **validation**, and **statistical risk analysis**. Proficient in **Python**, **R**, **SQL**, and **SAS**, with strong grounding in **stochastic modeling**, **simulation**, and **regulatory-aligned model governance**. Passionate about ensuring model reliability, interpretability, and compliance through rigorous testing and cross-functional communication.

## Education

**Ph.D Candidate in Financial mathematics & Statistics,**
*University of California, Santa Barbara*
09/2018 – present
Conducted research on **high-dimensional statistical modeling**, **machine learning techniques**, and **simulation-based inference**, with applications to **risk measurement** and **portfolio optimization**. Developed methods to analyze large, complex datasets and extract actionable insights for decision-making under uncertainty.

**M.A in Statistics,** *Wake Forest University*
**Thesis:** *Incorporating Climate Change Projections into Risk Measures of Index-Based Insurance*

- Built predictive and simulation-based models using **climate data and stochastic techniques** to assess payout design under uncertain risk
- Presented model findings and assumptions clearly to non-technical reviewers, supporting alignment with **decision frameworks and risk tolerances**

**B.S in Mathematics,** *Xi'an Jiaotong University*
09/2010 – 06/2016

- 2012-2016: Mount Everest Program in Mathematics and Applied Mathematics
- 2010-2012: Special Class for the Gifted Young

## Professional Experience

**Teaching Assistant,** *University of California, Santa Barbara*
09/2018 – present

- Delivered nearly 7 years of instruction and support in **SAS programming** and **statistical analysis**, guiding undergraduate students through data manipulation, modeling, and interpretation tasks.
- Designed and taught **Probability & Statistics** and **SAS programming** courses during summer quarters, with an emphasis on **hands-on coding**, reproducible workflows, and applied problem-solving.

**Quantitative Banking Book Consultant,** *Ernst & Young LLP*
06/2023 – 08/2023

- Developed and validated **capital models** to support regulatory and internal capital adequacy assessments, with a focus on model reliability, documentation, and risk alignment.
- Conducted **scenario analysis and sensitivity testing** to evaluate capital model behavior under stressed conditions and ensure interpretability.
- Implemented SAS and Python code optimizations to enhance reproducibility and regulatory traceability of capital modeling processes.

**Graduate Assistant,** *Institutional Research, WFU*
08/2016 – 05/2018

- Collected, cleaned, and analyzed multi-source institutional data using **R and SAS**, developing predictive models (**regression, random forests**) to extract key operational drivers and support data-driven strategy.
- Designed and delivered **data visualizations** in **ggplot2** and **Tableau**, transforming complex analyses into actionable insights that guided **senior leadership decision-making**.