# Facheng Yu

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## EDUCATION

**University of Washington –** Seattle, WA, USA                             2023-2025(expected)
*Master of Science* in **Statistics**
- ➢ Cumulative GPA: **4.0**/4.0.
- ➢ Relevant Coursework: Statistical Learning; Statistical inference; Design and Analysis of Experiments.

**Wuhan University -** Wuhan, China                                             2019-2023
*Bachelor of Science* in **Mathematics and Applied Mathematics**
- ➢ Cumulative GPA: **3.84**/4.0.
- ➢ Probability Stochastic Process, Real Analysis, Functional Analysis, Advanced Algebra, Machine Learning, Differential Geometry.

## RESEARCH EXPERIENCE

**Undergraduate researcher**                                             08/2022-01/2023
*University of North Carolina at Chapel Hill; working with prof. Guanting Chen*
- ➢ Researched the problems and classic models in online learning.
- ➢ Finished a report about Blackwell's approachability and its applications.

**Undergraduate researcher**                                             04/2021-08/2022
*Wuhan University; working with prof. Yidong Lou and prof. Weixing Zhang*
Project: A Precipitation Prediction System Based on Machine Learning and Multi-source Data
- ➢ Researched the threshold method with the water vapor, including analyzing the related work in the rain nowcast, proposing ideas for improvement, and testing the effects.
- ➢ Gave a clear description of the rain events to help define the evaluation indexes, and achieved 92% average correct rate.

**Undergraduate researcher**                                             10/2021-01/2022
*Computer Vision & Remote Sensing Lab, Wuhan University; working with prof. Jian Yao*
Project: The Application of Deep Learning in Multi-view Commodity Recognition
- ➢ Transferred the models for face recognition into commodity recognition and then the supervised contrast learning.
- ➢ Proposed a weighted method for the retrieval in the embedding space, successfully achieving a Top-5 accuracy of nearly 100% for the recognition in videos.

## ADDITIONAL EXPERIENCE

**Integrating single-cell Hi-C and single-cell RNA sequencing data**        09/2023-09/2023
*Genome Sciences Hackathon at Noble Lab, University of Washington*
- ➢ Compare and contrast the integration performance of UnionCom and MMDMA between single-cell RNA and three different single-cell Hi-C representations (CDP, LDA, HiCRep).

**Video Summarization with Flexible Multi-agent Reinforcement Learning**        07/2021-08/2021
*Project-based Learning in Artificial Intelligence, University of Cambridge*
- ➢ Helped explain the deep reinforcement learning structures and corresponding formulas to group mates.
- ➢ Built a LSTM to generate the policy and optimized the model with the Monte Carlo method.

**Balanced Network Models of Cortical Circuits**                    01/2021-02/2021

*Online Winter Program in Theoretical Neuroscience, University of Cambridge*

➢ Solved the linear system to get the theoretical mean and variance of the neurons' spiking based on the leaky integrate-and-fire model.

➢ Implemented the code to simulate the interactions of the excitatory, the inhibitory, and the external neuron population.

**Examples and Exercises of Big Data Analysis**                    06/2020-08/2020

*Online Summer School, Yau Mathematical Sciences Center, Tsinghua University*

➢ Finished several projects, including the crowd simulation with agent-based modeling, the ticket prediction with multiple linear regression, ingredient proportion with adjacent interpolation, and industrial quality control with SVM.

## TEACHING

**Teaching Assistant** - *University of Washington*

➢ STAT 499: Undergraduate Research - Sparse Linear Model in High Dimensions
  ▪ Mentor of Statistics Direct Reading Project, 2024 winter

## SCHORLARSHIPS AND HONORS

➢ Asia and Pacific Mathematical Contest in Modeling (Third Prize), 2022
➢ The Chinese Mathematics Competition (Third Prize), 2020, 2021
➢ Excellent Student Scholarship, Wuhan University, 2020, 2021, 2022

## SKILLS

➢ Computer skills: Proficient in Python; familiar with R and Latex.
➢ Languages: English (fluent) and Chinese (native).