

# Zishan Shao

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## EDUCATION

### Wake Forest University

Bachelor of Science in Computer Science

Second major in Statistics

GPA: 4.00; Dean's List: Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022

Relevant Coursework: Python, C, R, Java, Data Structures and Algorithms, Machine Learning, Statistical Learning, Multivariate Analysis, Probability, Linear Models, Assembly Languages, Multivariate Calculus, Linear Algebra, Discrete Mathematics, Special Topics – Computer Vision, High-Performance Computing, Parallel Computing, Numerical Optimization

Winston-Salem, NC

May 2024

## COMPUTER SKILLS/PLATFORMS

- Proficient with Python, C, pandas, numpy, scikit-learn, tensorflow, keras, seaborn, opencv, etc.
- Project Experience with implementing Exploratory Data Analysis (EDA), Unsupervised Learning (Clustering, Principal Component Analysis, P-norms), Missing Value Handling (Imputation, Complete Case Analysis), Matlab, OpenMPI, cblas, mkl\_lapacke, sparseblas, SIFT, LBP, HOG filters
- Exposure to working knowledge of SQL, Dynamic Modeling, Linux, HTML, CSS, JavaScript, and Excel
- GitHub account: <https://github.com/Zishan-Shao>

## PROFESSIONAL EXPERIENCE

### Wake Forest WFU Parallel Machine Learning Group

Undergraduate Research Assistant

Winston-Salem, NC

Spring 2022 – Present

- Conducted extensive research on communication-avoiding kernel machine learning algorithms (Ridge Regression, SVM)
- Developed novel kernel methods and optimization algorithms and experimented with S-step optimization algorithms to improve kernel function computation and optimization.
- Utilized C programming and high-performance computer clusters for parallel computing with OpenMPI.
- Performed sparsity analysis and compressed sparse row matrix operations using sparseblas and mkl packages.
- Employed libsvm (version 3.31) for dataset selection and model training.
- Mentored by Dr. Aditya Devarakonda (devaraa@wfu.edu)

### Wake Forest IRSC Laboratory

Undergraduate Research Assistant

Winston-Salem, NC

Spring 2022 – Present

- Conducted computer vision research projects utilizing Histogram of Gradients, SIFT filters, and Support Vector Machine for palm tree detection in orthomosaic plots collected from Peruvian Rain Forest
- Applied deep learning methods such as ResNet and Faster-RCNN for semantic segmentation and classification of objects
- Utilized quantitative methods in Python, including OpenCV, Scikit-image, and Scikit-learn, for image data processing
- Evaluated model performance with visualization tools such as Seaborn and OpenCV, and metrics including ROC, AUC curve, confusion matrix, sensitivity, specificity, and hyperparameter tuning
- Mentored by Victor Pauca (paucavp@wfu.edu)

### Meituan

Operation Analyst Intern

Shanghai, China

Jun. 14<sup>th</sup>, 2021 – Jul. 23<sup>rd</sup>, 2021

- Engaged in development of Interactive Voice Response (IVR) Customer Communication Script Project for Middle-size Business Loans promotion.
- Managed and developed the strategy of Online Promotion of Meituan Business Loans; organized and wrote product requirement document (PRD) for the daily operation activities.
- Used MySQL to monitor the change in customer responses

### Center for Learning, Access, and Student Success (CLASS)

Peer Tutor (Paid)

Winston-Salem, NC

Oct. 14<sup>th</sup>, 2021 – Present

- Provided on-site peer tutoring in computer science for the Center for Learning, Advising, and Student Success (CLASS) at Wake Forest University
- Provide feedback for student performances

## LEADERSHIP EXPERIENCE

### The Interdisciplinary Contest in Modeling (ICM)

Group Leader

Winston-Salem, NC

Spring 2021 - present

- The ICM is an international modeling competition; Undergraduates work as team of three to construct mathematical model(s) for social problem.
- Responsible for data analysis and model building work in the team through MatLab.