

# Jue Guo

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## OBJECTIVE

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Jue Guo, a Ph.D. candidate in Computer Science. With a notable teaching background in deep learning and pattern recognition, Jue has focused his research on machine learning techniques, especially in the realms of image classification, natural language processing, **continual learning**, and medical imaging. Skilled in Python, GitHub, and JavaScript, he's adept at leveraging various machine learning frameworks to address complex challenges.

## EDUCATION

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**The State University of New York at Buffalo**  
*PhD, Computer Science*

Buffalo, NY  
*August 2022 – Current*

**The State University of New York at Buffalo**  
*Master of Science, Robotics*

Buffalo, NY  
*August 2020 – June 2022*

**Wake Forest University**  
*Bachelor of Science, Computer Science*

Winston-Salem, NC  
*August 2015 – May 2019*

## EXPERIENCE

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**Instructor**  
*University at Buffalo*

July 2023 – Present  
*Buffalo, NY*

- Led the course **Spring 2024**: CSE574 Introduction to Machine Learning; held weekly lectures and office hours.
- Led the course **Fall 2023**: CSE676 Deep Learning; held weekly lectures and office hours.
- Led the course **Summer 2023**: CSE555 Introduction to Pattern Recognition; held weekly lectures and office hours.

**Teaching Assistant**  
*University at Buffalo*

August 2022 – May 2023  
*Buffalo, NY*

- Served as a Teaching Assistant for Deep Learning and Machine Learning courses; held weekly lectures and regular office hours to assist and guide students.

**Machine Learning Engineer**  
*Zhejiang University, Zhejiang Society For Mathematical Medicine*

June 2019 – August 2020  
*Hangzhou, China*

- Worked in a Lab at Zhejiang University.
- Developed a bone age detection system for Zhejiang No.1 People's Hospital's Orthopedics Department.

**Software Engineer Intern**  
*Nanjing Ohappure Tech Co. Ltd*

June 2018 – August 2018  
*Nanjing, China*

- Participated in the "Fresh Water, Rural China" project.
- Updated the water quality database to align with company products.
- Delivered a demo for efficient database access.

**Software Engineer Intern**  
*Nanjing Ohappure Tech Co. Ltd*

June 2017 – August 2017  
*Nanjing, China*

- Updated the company website using Javascript, CSS, and HTML.
- Recognized as the Best Intern of Summer 2017.

## PROJECTS

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- Pascal-Like Compiler in C++** | *C++, VScode* September 2017 – December 2017
- Developed a compiler in C++ for a Pascal-inspired language, gaining hands-on experience with data structures and compiler logic. The project was recognized by the instructor as “*the most outstanding in the class.*”
- Course Registration Website** | *Javascript, HTML, CSS* September 2019 – December 2019
- Led the development of a course registration system using PHP. The project emphasized rapid language acquisition and timely delivery. Adapted to user feedback to ensure a functional final product.
- Simple Parallel Cashier System** | *C++, OpenMP, MPI* September 2019 – December 2019
- Simulated a grocery store checkout system, incorporating features like discounts and promo codes. Implemented in C++ using MPI to leverage the capabilities of modern hardware.
- Multi-Human Pose Estimation** | *Tensorflow, Python* September 2021 – December 2021
- Focused on multi-person pose estimation to localize 2D keypoints of multiple individuals in an image. Explored the bottom-up approach, predicting all keypoints and then grouping them, with an emphasis on graph clustering applications.

## TECHNICAL SKILLS

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**Languages:** Python, Javascript, CSS, HTML, C++, Java  
**Libraries:** Tensorflow, Pytorch, OpenMP, MPI

## COURSES

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### Undergraduate CS Courses

- CSC 111A** | *Intro CS — Java*
- Projects: “Wheels of Fortune”, “Black Jack”, “Connect Four”, “Connect Four-GUI”
- CSC 112** | *Computer Science Fundamentals — C++*
- Projects: “Pig Latin”, “Normalization”, “Grade Calculator”
- CSC 165** | *Problem Solving Seminar*
- Focused on competition-level problem-solving techniques
- CSC 211** | *Computer Organization*
- Explored assembly language and hardware-oriented aspects of CS
- CSC 221** | *Data Structure and Algorithm*
- Projects: “3-D Array”, “Doubly Linked Lists”, “Binary Search Tree”, “Heap”, “Hash Table”, “Huffman Code”, “Page Rank”, “SudokuBoard”
- CSC 222** | *Advanced Data Structures and Algorithms*
- Projects: “RSA”, “Matrix Multiplication”, “Knapsack Problem Optimization”
- CSC 231** | *Programming Languages*
- Studied various programming paradigms and language design principles
- CSC 241** | *Computer Systems*
- Explored OS resource management and interface design; Projects: “Simple Shell”, “Sleeping Barber”, “Conway’s Problem”, “Unisex Bathroom”, “Scheduling Method”
- CSC 331** | *Software Engineering*
- Introduction to large-scale software system design and solutions
- CSC 333** | *Principles of Translators*
- Explored techniques for translating high-level programming languages; Topics included lexical analysis, parsing, and optimization
- CSC 346** | *Parallel Computation*
- Studied techniques for parallel and high-performance computing
- CSC 355** | *Numerical Methods*

- Focused on numerical computation and floating-point arithmetic

### **CSC 399** | *CS Mastery Exam*

- Comprehensive exam covering core CS concepts

### **Graduate CS Courses**

#### **CSE 521LEC** | *Operating System*

- Studied the design and implementation of operating systems, including process management, memory management, file systems, and concurrency

#### **CSE 546LEC** | *Reinforcement Learning*

- Explored the principles and techniques of reinforcement learning, including value functions, policy optimization, and exploration-exploitation trade-offs

#### **CSE 555LEC** | *Pattern Recognition*

- Explored foundations of pattern recognition algorithms; Topics included statistical and structural methods, clustering, and small sample size problems

#### **CSE 568LEC** | *Robotics Algorithms*

- Comprehensive introduction to software for autonomous mobile robots; Topics included kinematics, sensors, Bayes filter, localization, and mapping

#### **CSE 573LEC** | *Computer Vision and Image Processing*

- Introduction to AI techniques for computer vision; Topics included image formation, edge detection, feature extraction, and object detection

#### **CSE 574LEC** | *Machine Learning*

- Explored machine learning techniques; Topics included decision trees, neural nets, Bayesian learning, and reinforcement learning

#### **CSE 673LEC** | *Computational Vision*

- Advanced course on computer vision; Explored deep learning applications in image recognition, detection, and segmentation

#### **CSE 676LEC** | *Deep Learning*

- Studied deep learning algorithms; Topics included neural networks, convolutional networks, and recurrent networks