Junhua Huang

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Education

University of Rochester   Rochester, NY
BS in Computer Science, BS in Business, Cluster in Studio Art   Anticipated May 2025

- GPA: 3.85/4.00, Dean's List 6/6 semesters
- Undergraduate research scholarship-Schwartz Discover Grant 2022
- Co-founder and treasurer of The ACM Chapter of the University of Rochester

Leadership

Treasurer, ACM Student Chapter   Feb 2024 - Present
U of R Computer Science Undergraduate Council

- Managed financial operations as Treasurer, overseeing budgeting, fundraising, and financial reporting for the ACM Student Chapter and the University of Rochester Computer Science Undergraduate Council.
- Coordinated logistics for activities and workshops, ensuring smooth execution and alignment with chapter goals.
- Handled food procurement for events, balancing dietary preferences and budget constraints to enhance participant experience.

University of Rochester Computer Science Department   Rochester, NY
Teaching Assistant & Workshop Leader - CSC 172 Data Structures and Algorithms   Aug 2023 – Present
Workshop Leader - CSC 171 Introduction to Computer Science   Dec 2022 – May 2023

- Led weekly seminar workshops with Java and facilitated student discussions, sharpening students' understanding of course materials through collaborative problem-solving and discussion of materials.
- Conducted a pedagogical research project to determine whether extending office hours before and/or after workshops could enhance students' understanding and academic performance.
- Provided regular feedback to professors to improve course design and learning materials.
- Collaborated in the 'Team Learning in Action' project, providing key participant data and insights to support an NSF research initiative.

Engineering Experience

Machine Learning engineer Intern   Wuhan, China
Farsee2 Technology Co., Ltd   July 2024 – Sep 2024

- Designed one innovative methods to reduce the floating component in digital reconstruction models by 40%, using ground truth depth to minimize loss, under the mentorship of PhD Hailong Pan.
- Developed a customized workflow for parallel computing across multiple machines, enhancing computational efficiency.
- Contributed to the upgrading of the new core algorithm of digital reconstruction software.

Researcher   Rochester, NY
Goergen Institute for Data Science, University of Rochester   Jan 2024 – Present

- Conducted research on generative fairness and bias in large language models (LLMs) within the context of political ideology.
- Developed methods for calculating and evaluating political ideologies to conduct blind testing on LLMs.
- Automated the data collection process using Python and an API, resulting in a 400% increase in efficiency.
- Built and maintained a comprehensive database of ideology topics and their evaluations, containing over 140,000 entries.

Research Assistant   Rochester, NY
Professor Chengliang Xu's Lab, University of Rochester   May 2024 – Present

- Developed a new computer vision model for TAL by implementing an end-to-end solution using Mamba.
- Mentored by Researcher Pinxin Liu to deploy, test, and improve various machine learning tasks; successfully ran and tested related paper codes on Linux servers.

- Modified the ViT model to a Transformer++ structure and improved the previous model's backbone, making it more suitable for testing and debugging new functionalities by the team.

Technical Assistant   Wuhan, China
Wuhan Jingying Haitao Information Technology Co., Ltd   Jun 2023 – Oct 2023
- Created a biomedical patent database using MySQL to support Dr. Conjing Ran and Ph.D. S Liu's research.
- Improved data collection efficiency by 20% by building an automated web crawler script in Python.
- Collected and labeled 18,000+ entries as sample data contributing to language model training.
- Utilized Lucidchart to design Entity Relationship Diagrams (ERDs), encompassing 100+ keys and attributes, to optimize data visualization and management.

Research Assistant   Rochester, NY
University of Rochester, Rochester, NY   May 2022 – Dec 2022
- Collaborated with Dr. Zhu, Dr. Jarvis, and team members on a project to digitally reconstruct the Jamestown Settlement and Elmina Castle using low-cost image-based 3-D Virtual Reality reconstruction.
- Disseminated high-resolution models into similar visual effects, low-space-cost models that could be run in virtual reality environments.
- Utilized software such as Agisoft Metashape and Unity to create detailed 3D models. Conducted screening, cleaning, and restoration of raw image data for 3D modeling and virtual reality applications.
- Utilized software such as Agisoft Metashape, and Adobe Photoshop to repair overlapping virtual camera angles, manually cleaned up interfering point clouds, and repaired shadows, lighting, and surface materials.

Projects

OpenJDK 17u-dev   Jul 2024 – Aug 2024
- Wrote a step-by-step installation guide on GitHub for deploying JDK for Linux local testing.
- Contributed to the testing and acceptance of pull request #2756(8313674) in Ubuntu 22, helping to improve the JDK.

IMDB Database Project   Aug 2023 – Dec 2023
- Led a team of three in ensuring database compliance and enhanced security, focusing on testing, compatibility assessment, and debugging to prevent injection attacks.
- Implemented a login system and customized functions for CRUD operations based on user type using JavaScript, PHP, MySQL, HTML, Git, and CSS; redesigned the website UI and database security features.

Body Signals Analysis Project   Sep 2023 – Dec 2023
- Preprocessed over 900k records by selecting relevant attributes through feature engineering and reducing dimensionality with Principal Component Analysis (PCA).
- Developed NLP machine learning models with 72-81% accuracy for predicting the impact of smoking and drinking on body signals using SVM, XGBoost, and PCS techniques; visualized data trends using Seaborn and Matplotlib to enhance understanding of behavioral patterns.

Bob's Burgers App Project   Jan 2023 – May 2023
- Solo-developed the Android app, demonstrating proficiency in RecyclerView, API integration, and MVVM architecture, and effective end-to-end app development management.
- Ensured robust app functionality by implementing error handling for invalid API requests, contributing to a seamless user experience.
- Designed a user-friendly interface with attention to color aesthetics and smooth animations, enhancing user engagement and accessibility.

Skills

Technical Skills: Java, Kotlin, Python, C, R, SQL, HTML, CSS, Linux, JavaScript, PHP, MySQL, Git
Software: Android Studio, IntelliJ IDEA, Google Suite, Microsoft Office, SolidWorks, Metashape

Interests

Cycling, Fishing, Scuba Diving (PADI Advanced Open Water Diver)