

WANG LONGAN

Sichuan University Jiangan Campus, Shuangliu, Chengdu, Sichuan, China

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Education

Sichuan University

September 2021 – Present

Artificial Intelligence, College of Computer Science

Chengdu, Sichuan, China

- GPA : **3.86**/4.00 (Compulsory); Weighted Average Mark: **91.13**/100.00 (Compulsory).
- Relevant Coursework:
 - * Deep Learning (**100**)
 - * Optimization Theory (**96**)
 - * GPU Programming (**96**)
 - * Matrix Analysis (**99**)
 - * Machine Learning (**96**)
 - * Mathematics Modeling (**95**)
 - * Computer Network (**98**)
 - * Artificial Intelligence (**96**)
 - * Algorithm Analysis (**94**)

Academic

Machine Intelligence Laboratory, Sichuan University

June 2022 – Present

Research Intern

Chengdu, Sichuan, China

- Researching on Cross-modal learning, Multimodal learning, and noisy labels, mentored by Prof. Peng Hu.
- Introduced a novel approach for Cross-modal Hashing on noisy labels, worked with Prof. Peng Hu, Prof. Dezhong Peng, Prof. Xi Peng, Mr. Qin Yang and Mr. Yuan Sun.
- Proposed a rehabilitation system for children with cerebral palsy, guided by Prof. Peng Hu and Prof. Hongchen He.
- **First author** of *ACM MM'24* Conference paper, **1 utility model patent** and **5 software copyrights**.

NUS SOC Summer Workshop 2023, National University of Singapore

May 2023 – August 2023

Summer Workshop Participant

Singapore

- Researched on Big Data Analysis and Visualization, mentored by Prof. Danny Poo.
- Proposed a predictive model for the Beijing property market, guided by Prof. Danny Poo and Ms. Guoting Kong.
- **First Prize** and **A+ Rating**.

Projects

Noise Resistance Cross-modal Hashing

June 2023 – Present

- Introduced a novel approach to achieve robust contrastive Cross-modal Hashing on noisy labels.
- Devised a Robust Contrastive Hashing loss (RCH) to prioritize homologous pairs over noisy positives, enhancing reliability of binary representations for cross-modal retrieval.
- Proposed a Dynamic Noise Separator (DNS) that discerns clean and noisy labels using loss distributions, eliminating the need for manual noise level estimation and reducing noise overfitting.
- **First author** of ACM MM'24 Conference paper (**CCF-A**, Submitted).

Intelligent Apple Orchard Harvesting System

September 2023 – November 2023

- Achieved precise and robust fruit classification and apple detection, followed by estimation of apple quantity, coordinates, ripeness, and mass, based on ResNet and Faster R-CNN, respectively.
- Reduced the distance and angle bias by clustering apples at a pixel level with K-means algorithm.
- Constructed a volume calculation model based on sphericity of apples.
- **First Prize** and **Innovation Prize** (Rate: 6/10000, First Place) in the 2023 APMCM, **Team Leader**.

Investment Analysis for Property in Beijing

May 2023 – August 2023

- Employed financial techniques, *i.e.* K-charts and MA-charts, for house price trend analysis.
- Leveraged DNNs to establish a feature-to-price mapping for price rationality assessments.
- Generated heatmaps to guide investors towards profitable locations.
- **First Prize** and **A+ Rating** in the NUS SOC Summer Workshop.

Spastic Cerebral Palsy Cognitive Rehabilitation Training System

June 2022 – October 2023

- Developed a game-based home rehabilitation system for children with spastic cerebral palsy, focusing on enhanced engagement and personalized training by tracking movement and emotional changes.
- Implemented a Spatio-Temporal Graph Convolutional Network (STGCN) based on OpenPose for movement detection.
- Implemented a dual neural network combining CNN and Transformer architectures for emotion detection.
- **Provincial Outstanding Project** in Undergrad Innovation and Entrepreneurship Program, **Project Leader**.

Awards and Achievements

- **Innovation Prize**, Asia and Pacific Mathematical Contest in Modeling, November 2023.
- **First National Prize**, Asia and Pacific Mathematical Contest in Modeling, November 2023.
- **Second National Prize**, Mathematical Contest In Modeling, February 2024.
- **Second National Prize**, MathorCup College Mathematical Modeling Challenge, July 2023.
- **Second National Prize**, Mathematical Contest In Modeling, February 2023.
- **First Provincial Prize**, National College Students' Mathematical Modeling Competition, September 2023.
- **First Provincial Prize**, Sichuan College Student Academic Science and Technology Competition, September 2023.
- **Second Provincial Prize**, Chinese Collegiate Computing Competition, May 2023.
- **Second Provincial Prize**, HUAWEI ICT Competition, February 2023.
- **Provincial Outstanding Project, Leader**, Undergrad Innovation and Entrepreneurship Program, December 2023.
- **First Prize**, NUS SoC Summer Workshop, July 2023.
- **Outstanding Student**, Sichuan University, October 2023.
- **Outstanding Student**, Sichuan University, October 2022.
- **Utility Model Patent, First Inventor**, CN 219501919 U, August 2023.
- **Software Copyright**, 2024SR0511512, April 2024.
- **Software Copyright**, 2023SR0406133, March 2023.
- **Software Copyright**, 2023SR0379563, March 2023.
- **Software Copyright**, 2023SR0649892, May 2023.
- **Software Copyright**, 2023SR0649414, April 2023.

Technical Skills

- **English Skills**: IELTS—7.0 (December 2023), CET-6—567 (June 2022)
- **Programming Skills**: Python, C++, C, Java, SQL, JavaScript, HTML, CSS, Markdown, L^AT_EX
- **Developer Tools**: VS Code, Visual Studio, MySQL, Matlab, SPSS, Stata, Overleaf, VMware
- **Technologies/Frameworks**: Linux, GitHub, Pytorch, Tensorflow

Interest Areas

- Cross-modal Retrieval
- Multimodal Learning
- Noisy Labels
- Computer Vision
- Natural Language Processing
- Machine Learning
- Deep Learning
- Data Science and Big Data Analytics

Future Plans

I firmly believe that truly noble and outstanding individuals possess the ability to swiftly glean wisdom from the whims of fate and remain grateful. They understand that in this world, true treasures lie in the acquisition of knowledge and education, transcending mere transient happiness. Therefore, I am willing to ***exchange hope and effort for thought and insight***. As the poet Petrarch once said, “I find joy in nothing but learning.” I am driven by an insatiable thirst for knowledge. This relentless pursuit propels me forward, igniting a passion for actively exploring and enriching my academic journey.