

# Hao Wei Xue

MASTER · DIGITAL HUMAN ALGORITHM ENGINEER

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"My dream is creating powerful and intelligent human-centered HCI system!"

## Education

### Northwest A&F University, College of Information Engineering

Xianyang, Shaanxi

BACHELOR OF COMPUTER SCIENCE AND TECHNOLOGY

Sep. 2019 - Jun. 2023

- GPA : 3.46 / 4.00
- Major courses : Advanced Mathematics (98), Linear Algebra (100), Probability Theory and Mathematical Statistics (97), Discrete Mathematics (97), Frontiers of Computer Science and Technology Development (97), Matrix Theory (97).

### National University of Singapore, School of Computing

Singapore

SUMMER PROGRAMME OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING (COMPUTER VISION)

Jul. 2024 - Aug. 2024

- Overall Grade : Distinction
- A distinction : This is a special award for outstanding performance and an encouragement to others.

### Northwest A&F University, College of Information Engineering

Xianyang, Shaanxi

MASTER OF COMPUTER SCIENCE AND TECHNOLOGY

Sep. 2023 -

- GPA : 3.80 / 4.00
- Research interest : Computer vision, Human-computer interaction, 3D hand reconstruction

## Publications

### LGNet: Local-and-Global Feature Adaptive Network for 3D Interacting Hand Mesh

Xianyang, Shaanxi

#### Recovery

FIRST AUTHOR

May. 2024

- In the process of submitting a manuscript
- To address the ambiguity, self-obscuration and self-similarity issues caused by existing Transformer-based methods in learning the interaction between two hands, local and global feature adaptive networks are proposed to effectively model the spatial dependency between two hands by decoupling the hand mesh reconstruction task into three stages.

### Hand reconstruction incorporating biomechanical constraints and multi-modal data

Xianyang, Shaanxi

FIRST AUTHOR

Sep. 2023

- Journal of Graphics
- Peking University core
- To address the issues of high cost and slow response speed of current monocular hand reconstruction devices, a method is proposed to obtain hand shape and posture for 3D hand reconstruction using a monocular camera.

### Gesture Recognition Algorithm Introducing Ghost Feature Mapping and Channel

Xianyang, Shaanxi

#### Attention Mechanism

SECOND AUTHOR

Jan. 2023

- Journal of Computer-Aided Design & Computer Graphics
- EI, Peking University core
- To address the issues of insufficient feature extraction capability of lightweight target detection network for static gestures and high error and leakage detection rates, a lightweight gesture recognition algorithm is proposed based on the YOLOv4-tiny network structure.

## Experience

### Shaanxi Provincial Student Innovation Training Program (S202110712285)

Xianyang, Shaanxi

PROJECT LEADER

May. 2021 - May. 2022

- Research and development of intelligent media interactive applications based on Mediapipe framework and augmented reality technology.
- Mathematical modeling : Optimize the gesture recognition algorithm and use the Mediapipe framework to build a 3D skeleton gesture recognition model, which improves the prediction accuracy by 5%.
- Software Design : Leading the development and design of software, designing and developing an intelligent media interaction APP based on gesture recognition technology that instantly generates 2D/3D interactive special effects and recognizes 23 common gestures.
- Material writing : Writing project application form, conclusion letter, paper submission, and soft copy application form, totaling more than 20,000 words.
- Project achievements: Excellent mid-term inspection results of provincial-level innovation projects, one EI paper, and two software copyrights.

## Internship at Jiangsu Yuan Shang Yuan Intelligent Technology Co.

Changzhou, Jiangsu

NORTHWEST A&F UNIVERSITY SCHOOL-ENTERPRISE JOINT PRACTICAL TRAINING PROJECT

Jun. 2022 - Aug. 2022

- Image description software based on gesture recognition.
- Project Introduction: Screenshots can be taken within the scope of the camera through voice, and text descriptions and text descriptions of the screenshot images can be generated for Chinese voice broadcast. The combination of "speech recognition + image description image" is more powerful than traditional description and can be used in areas such as life assistance for the deaf and aphasic, cross-language communication, etc. It can fully expand the application field of image description technology in a more immersive interactive form. Give full play to the powerful role of image description technology.

## JavaEE Enterprise-Level Development Training

Xianyang, Shaanxi

NORTHWEST A&F UNIVERSITY SCHOOL-ENTERPRISE JOINT PRACTICAL TRAINING PROJECT

Jun. 2021 - Aug. 2021

- Community Smart Property Management System.
- Project background: With the continuous improvement of science and technology, this traditional manual management method will inevitably be replaced by accounting-based information management methods. Smart property is an inevitable trend in the development of the property industry in the future.
- Main work: This system adopts B/S architecture, Java, Html, Css, Js and other technologies, and uses the mainstream back-end development framework SpringBoot (SpringMVC+Spring+Mybatis). The front-end development framework uses LayUI, Vue, JQuery and Vue. The front-end component library Element-UI is developed using the open source lightweight database Mysql.
- Project achievements: Realized the main functions of community management, real estate management, equipment management, owner management, service management, parking space management and so on. Improve the level of property management, improve work efficiency and reduce costs.

## Presentation

### 2024 Artificial Intelligence and Machine Learning (Computer Vision)

Singapore

NATIONAL UNIVERSITY OF SINGAPORE SUMMER PROGRAM

Jul. 2024

- Overall Grade: Distinction
- A distinction is awarded when a participant has taken a leading role in the course, has been interactive and has demonstrated a high capacity to understand and converse in English. This is a special award for outstanding performance and an encouragement to others.

### The 22nd China Virtual Reality Conference

Kunming, Yunnan

CHINAVR2022

Nov. 2022

- Report title: Three-dimensional reconstruction of hand integrating biomechanical constraints and multi-modal data.
- Discuss cutting-edge topics in the field of 3D modeling and content generation with doctoral and master students from Tsinghua University, Beijing University of Aeronautics and Astronautics, and Beijing University of Posts and Telecommunications.

### 13th International Conference on Graphics and Image Processing

Kunming, Yunnan

ICGIP2021

Aug. 2021

- Report title: A Gesture Recognition Smart Media Interactive Application
- Discuss the next generation of human-computer interaction methods with domestic and foreign experts and scholars from Hokkaido University, Japan, Huazhong University of Science and Technology, etc.

## Honors & Awards

### RESEARCH COMPETITION

2023	<b>National First Prize, Team Leader</b> , The 6th China Virtual Reality Competition	Suzhou, Jiangsu
2023	<b>National Second Prize, Team Leader</b> , "Huawei Cup" 20th China Postgraduate Mathematical Modeling Competition	Nanjing, Jiangsu
2023	<b>Provincial First Prize, Team Member</b> , The 25th China Robot and Artificial Intelligence Competition	Jiaxing, Zhejiang
2022	<b>National First Prize, Excellent Display Award, Team Leader</b> , The 5th China Virtual Reality Competition	Kunming, Yunnan
2022	<b>National First Prize, Team Leader</b> , The 24th China Robot and Artificial Intelligence Competition	Cixi, Zhejiang
2021	<b>Provincial First Prize, Team Member</b> , China College Student Computer Design Competition	Xianyang, Shaanxi
2021	<b>School Competition Special Prize, Team Member</b> , The 11th National College Student E-Commerce "Innovation, Creativity and Entrepreneurship" Competition	Xianyang, Shaanxi

### DOMESTIC AWARDS

2023	<b>Shaanxi Province</b> , "Outstanding Graduates of Higher Education Institutions in Shaanxi Province"	Xianyang, Shaanxi
2023	<b>Northwest A&amp;F University</b> , "One Hundred Excellent Graduation Thesis (Design)"	Xianyang, Shaanxi
2023	<b>Northwest A&amp;F University</b> , "Excellent Communist Party Member"	Xianyang, Shaanxi
2023	<b>Northwest A&amp;F University</b> , "Outstanding College Student"	Xianyang, Shaanxi
2023	<b>Northwest A&amp;F University</b> , "Excellent Anti-epidemic Volunteer"	Xianyang, Shaanxi
2023	<b>Northwest A&amp;F University</b> , College of Information Engineering Professional Scholarship (4 times)	Xianyang, Shaanxi

## Volunteering

2021	<b>Ecological protection activities in Baoji City, Shaanxi Province</b> , Volunteer	Baoji, Shaanxi
2021	<b>COVID-19 Prevention and Control in the Community of Mei County, Baoji City, Shaanxi Province</b> , Volunteer	Baoji, Shaanxi
2021	<b>2021 Yangling International Marathon</b> , Volunteer	Xianyang, Shaanxi
2021	<b>The 28th Agricultural High-Tech Conference</b> , Volunteer	Xianyang, Shaanxi
2019	<b>School of Information Love Teaching Team</b> , Volunteer	Xianyang, Shaanxi
2018	<b>School of Horticulture Love Teaching Team</b> , Volunteer	Xianyang, Shaanxi

## Social Practice

2021	<b>Empirical Analysis of the Impact of Smart Agriculture on the Income of Kiwifruit Growers in Meixian County, Shaanxi Province</b> , 2021 Summer Social Practice	Baoji, Shaanxi
2021	<b>Summary Report of 'Inheriting the Red Gene by Walking in a Hundred Museums and Learning the Four Histories to Strive to be a New Man of the Times'</b> , 2021 Winter Social Practice	Baoji, Shaanxi
2020	<b>Research on online education of primary and secondary school students in Xiaofayi Village, Meixian County, Baoji City, Shaanxi Province, during the period of epidemic prevention and control</b> , 2020 Summer Social Practice	Baoji, Shaanxi
2020	<b>Research on the Construction of a Large Data Demonstration Centre for Kiwifruit in Shaanxi</b> , 2020 Winter Social Practice	Baoji, Shaanxi
2019	<b>Research on Straw Utilisation in Guanzhong Region by School of Resources and Environment</b> , 2019 Summer Social Practice	Baoji, Shaanxi
2019	<b>Return Visit To High School To Promote NWAUFU And Cheer On Seniors</b> , 2019 Winter Social Practice	Baoji, Shaanxi

## School activities

<b>2021 Cultural Programme for the Opening Ceremony of the School Games</b>	Xianyang, Shaanxi
MEMBER	2021
• The Power of NWAUFU.	
<b>2019 Cultural Programme for the Opening Ceremony of the School Games</b>	Xianyang, Shaanxi
MEMBER	2019
• Descendants of the Dragon (i.e. Han Chinese).	

## Skills

<b>Softwares</b>	Vim, Unreal Engine 4, Blender, Maya, MATLAB, Adobe Illustrator, Unity
<b>DevOps</b>	AWS, Docker, Kubernetes, Rancher, Vagrant, Packer, Terraform, Jenkins, CircleCI, GCP, Github
<b>Back-end</b>	Koa, Express, Django, REST API
<b>Front-end</b>	Hugo, Redux, React, HTML5, LESS, SASS
<b>Programming Languages</b>	Node.js, C++, Python, JAVA, OCaml, LaTeX, CUDA, Javascript, Go, Ruby, SQL Chinese, English