# Hongjie Li

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## Education

2021 – 2025 **School of EECS, Peking University (PKU)**, *Beijing, China, 100871*

**PKU Zhi Class (2021)**

**GPA**: 3.8/4.0

**Relevant Courses**: Computer Vision, Introduction to Visual Computing and Interaction, The Mathematics in Artificial Intelligence, Character Animation and Motion Simulation, Machine Learning, Multimodal Learning, Introduction to Generative Modeling

## Research

### Research Interests

**Computer Vision**, 3D Human-Object/Scene Interaction, 3D Scene Understanding, Generative Visual Models

**Computer Graphics**, 3D Human Motion Synthesis

### Research Experience

Jun 2024 – Present **SVL**, Stanford University — *Research Intern*
3D Human-Scene Interaction
Advisor: Prof. Jiajun Wu

Sept 2023 – Present **National Key Lab for General AI**, BIGAI — *Research Volunteer*
3D Human-Object/Scene Interaction
Advisor: Dr. Siyuan Huang

Jan 2023 – Present **CoRe Lab**, Institute for AI, PKU — *Student Researcher*
Visually Grounded Reasoning
Advisor: Prof. Yixin Zhu

## Preprints and Publications

* denotes equal contribution, † marks the corresponding authors

2023 Nan Jiang*, Zhiyuan Zhang*, **Hongjie Li**, Xiaoxuan Ma, Zan Wang, Yixin Chen, Tengyu Liu, Yixin Zhu†, Siyuan Huang†

**Scaling Up Dynamic 3D Human-Scene Interaction Modelling**

Computer Vision and Pattern Recognition (CVPR) 2024

## Projects

Dec 2023 – Jun 2024 **Motion Editing via Distinguishing and Composing Atomic Motions**

Introduce the concept of atomic motion and atomic description for paired human motion and textual description. These two concepts are inherently modular and their relationships can be more clearly built.

Design a diffusion-based method for 3D human motion generation and editing from detailed instructions that involve composition of motions for specific body parts.

Jun 2023 – Jun 2024 **Generating 4D HOIs via Multi-scale Object-Centric HOI Representation**

Introduce a multi-scale object-centric human object interaction (HOI) representation that captures both coarse and fine-grained geometrical relationships within HOI.

Develop a HOI synthesis method that can generate HOI motions with arbitrary object poses and trajectories.

Apr 2023 – Nov 2023 **Scaling Up Dynamic Human-Scene Interaction Modeling**

Propose an extensive MoCap dataset that encapsulates comprehensive human scene interaction (HSI), highlighted its diversity, quality, and extensive scalability. Overcome the challenge of scarcity of high-quality HSI data.

Devise a diffusion-based auto-regressive method for HSI Generation with arbitrary length conditioned on the 3D scenes and action labels. The method demonstrates superb zero-shot generalizability.

Nov 2022 – Jan 2023 **Computer Vision for Primates in the Wild** (Course Project of CV)

Implement a holistic framework that can detect, identify, and estimate 2D pose for primates from image inputs.

## Technical Skills

**Languages** Python(proficient), C/C++

**Framework & Tool** PyTorch(proficient), PyCharm, Visual Studio Code, Blender, Git

## Professional Activities

### Technical Competitions

2023 **21st "Jiukun Cup" Programming Contest**, PKU *Third Prize*

## Awards and Scholarships

2023 **Third-Class Scholarship**, Peking University

2023 **Merit Student Award**, Peking University

2022 **Academic Excellence Award**, Peking University