# Zeyuan Chen

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## Education

**Northwest Minzu University** Sep. 2019 – Jun. 2023
*Bachelor of Science in Biotechnology, School of Life Sciences and Engineering* *Lanzhou, China*

**Peking University** Sep. 2023 – Present
*Master of Engineering in Software Engineering, School of Software and Microelectronics* *Beijing, China*

## Research Experience

**Dexterous Grasping in Confined Environment** Mar. 2024 – Sep. 2024
*Research Intern, Supervised by Prof. Hao Dong*

- **Overview:** Extended **DexGraspNet** to generate dexterous grasps in confined environments, Proposed a **diffusion-based hierarchical grasp generation network** that first predicts **wrist poses** globally and then refines **joint values** based on local point cloud information.

**Unified Grasp Representation for Dexterous Hand** **(In progress)** Sep. 2024 – Present
*Research Intern, Supervised by Prof. Hao Dong*

- **Overview:** Generated large-scale **grasp pose datasets** for multiple dexterous hands, using **IBS planes** as a unified representation. Proposed a **hierarchical architecture** to predict wrist poses and voxelized IBS, optimizing final grasps with a **tuned energy function** for robust grasping.

**Adaptive Visual-Tactile Fusion with Predictive Force Attention for Dexterous Manipulation** Nov. 2024 – Mar. 2025
*Research Intern, Supervised by Prof. Hao Dong*

- **Overview:** Proposed a novel **force-guided attention fusion module** to adaptively fuse visual and tactile information, supported by a **self-supervised force prediction module**. Achieved **93% success rate** in 3 real-world contact-rich tasks, demonstrating adaptive attention adjustment across multiple manipulation stages.

**General Dexterous Grasping Policy in Cluttered Environment** **(In progress)** Oct. 2024 – Present
*Research Intern, Supervised by Prof. Hao Dong*

- **Overview:** Trained a **teacher policy** in **Isaac Gym** for grasping in cluttered environments, distilled it into a **vision-based policy**, to achieve robust **sim2real** dynamic dexterous grasping for table-clearing tasks.

## Publications

**Adaptive Visual-Tactile Fusion with Predictive Force Attention for Dexterous Manipulation (Project Page)**
Jinzhou Li*, Tianhao Wu*, Jiyao Zhang**, **Zeyuan Chen****, Haotian Jin, Mingdong Wu, Yujun Shen, Yaodong Yang, Hao Dong
*IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2025* **(Under Review)**

## Projects

**Dexterous Grasp Synthesis from Para-Gripper Grasps (Demo)** Mar. 2024 – Apr. 2024
*Research Intern, Supervised by Prof. Hao Dong*

- **Overview:** Used **AnyGrasp** to generate para-gripper grasp candidates, mapped them to dexterous hand poses via **hand-tuned transformations**, and enabled table-clearing through **motion planning** and heuristic hand closing.

## Technical Skills

**Programming Languages**: Python, C/C++
**Deep Learning Framework**: PyTorch
**Robotics Frameworks**: ROS, Isaac Gym, Isaac Sim
**Languages**: English (Independent), Mandarin (native)

## Interests

**Fitness**: 100kg bench press | 10+ muscle-ups