

# Chuanruo Ning

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Homepage: <https://tritiumr.github.io/>

## EDUCATION BACKGROUND

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- **Peking University**, Beijing, China

Bachelor of Science, Turing Class in CS (hosted by Prof. John Hopcroft)    Sept 2020 - Present (expected June 2024)

GPA: 3.87/4.00 (2022-2023)    3.79/4.00 (2021-2022)

## HONORS AND AWARDS

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- Huatai Securities Scholarship, Peking University, 2023
- John Hopcroft Scholarship, Peking University, 2022
- Peking University Dean's Scholarship, Peking University, 2022
- Freshman Scholarship, Peking University, 2020

## PUBLICATIONS

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- **Learning Foresightful Dense Visual Affordance for Deformable Object Manipulation**  
Ruihai Wu\*, **Chuanruo Ning\***, Hao Dong    (\* denotes equal contribution)  
Project page: <https://hyperplane-lab.github.io/DeformableAffordance/>  
**ICCV 2023**
- **Where2Explore: Few-shot Affordance Learning for Unseen Novel Categories of Articulated Objects**  
**Chuanruo Ning**, Ruihai Wu, Haoran Lu, Kaichun Mo, Hao Dong  
**NeurIPS 2023**
- **Learning Environment-Aware Affordance for 3D Articulated Object Manipulation under Occlusion**  
Ruihai Wu\*, Kai Cheng\*, Yan Zhao, **Chuanruo Ning**, Ganqi Zhan, Hao Dong  
**NeurIPS 2023**

## RESEARCH EXPERIENCES

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- Research Intern, CCVL Lab, Johns Hopkins Univeristy    2023.6 – Present
  - **3D Part Detection**, Supervisor: Ph.D. Candidate Angtian Wang, Prof. Alan Yuille
  - Reconstruct 3D parts from a single image via render-and-compare method.
- Research Assistant, Center on Frontiers of Computing Studies, Peking University    2022.12 – Present
  - **Few-shot Affordance Learning for Articulated Objects**, Supervisor: Dr. Kaichun Mo (NVIDIA), Prof. Hao Dong
  - Efficiently manipulate articulated objects in novel categories with minimal explorations on limited novel instances.
  - Propose 'Similarity' to measure semantic similarity between local geometries across different categories.
  - Enable the model to perform few-shot learning on novel categories by discovering uncertain yet important areas.
- Research Assistant, Hyperplane Lab, Center on Frontiers of Computing Studies, Peking University    2022.1 – 2023.5
  - **Foresightful Deformable Object Manipulation**, Supervisor: Ph.D. Candidate Ruihai Wu, Prof. Hao Dong
  - Learn dense visual representations that reveal the dynamic and kinematic properties of deformable objects.
  - Propose a novel training pipeline to take the future states after one manipulation step into consideration.
  - Train the model in a reversed step-by-step manner to make it aware of 'potential', thus finding the global optimals.

## SKILLS

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- **Language:** Chinese: native    English: proficient (TOEFL 110)
- **Deep Learning Frameworks:** PyTorch (Proficient), TensorFlow (Proficient)
- **Programming languages:** Python, C&C++