Wanhao Niu

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EDUCATION

- **2018.09-2022.07** **Xi'an Jiao Tong University** **B.Eng in Mechanical**
  Graduation GPA: 3.83 Overall ranking: **5/205**
  Majors: Linear Algebra: 98; Advanced Mathematics: 91; Physics: 99; Thesis: A+
- **2022.09-2025.06** **Shanghai Jiao Tong University** **MA.Eng in Mechanical**
  Graduation GPA: 3.72 Overall ranking: **6/224**
  Majors: Digital Signal Processing: A+; Computer Graphics: A; Intelligent Control Technology: A
- **2024.04-2024.09** **Tokyo Institute of Technology** **YSEP exchange students**
  Research: Model-Free Object Grasping Technology Driven by Artificial Intelligence

PUBLICATIONS

Journal

✓ **Niu, W.,** Wang, H., & Zhuang, C. (2024). Adaptive Multiview Graph Convolutional Network for 3D Point Cloud Classification and Segmentation. *IEEE Transactions on Cognitive and Developmental Systems*. Early Access. Doi: https://doi.org/10.1109/TCDS.2024.3403900.

✓ **Niu, W.,** Zhu, Z., Wang, H., Zhuang, C. (2024). Customizable 6 Degrees of Freedom Grasping Dataset and an Interactive Training Method for GCN. *Engineering Application of Artificial Intelligence*, 138, 109320. Doi: https://doi.org/10.1016/j.engappai.2024.109320.

✓ Zhuang, C., **Niu, W.,** & Wang, H. (2025). Sparse Convolution-Based 6D Pose Estimation for Robotic Bin-Picking With Point Clouds. *Journal of Mechanisms and Robotics*, 17(3). Doi: https://doi.org/10.1115/1.4066281.

✓ Zhuang, C., Wang, H., **Niu, W.,** Han, D. (2025). A Parallel Graph Network for Generating 7-DoF Model-free Grasps in Unstructured Scenes Using Point Cloud. *Robotics and Computer-Integrated Manufacturing*, 92, 102879. Doi: https://doi.org/10.1016/j.rcim.2024.102879.

Conference

✓ **Niu, W.,** Wang, H., & Zhuang, C. (2023). Detection for Tiny Screw and Screw Hole by Semantic Segmentation Model. In *9th International Conference on Mechatronics and Robotics Engineering* (ICMRE) (pp. 91-95). IEEE. Doi: https://doi.org/10.1109/ICMRE56789.2023.10106576.

✓ Wang, H., **Niu, W.,** & Zhuang, C. (2023). GraNet: A Multi-level Graph Network for 6-DoF Grasp Generation in Cluttered Scenes. In *IEEE/RSJ International Conference on Intelligent Robots and Systems* (IROS) (pp. 937-943). IEEE. Doi: https://doi.org/10.1109/IROS55552.2023.10341549.

China Patent

✓ Zhuang, C., **Niu, W.,** Wang, H., Xiong, Z., & Zhu, X. (2023). Classification and Segmentation Method Based on Multi-View Adaptive GCNs. No. CN 116912561 A.

✓ Zhuang, C., Wang, H., **Niu, W.,** Xiong, Z., & Zhu, X. (2023). Model-free GCN for Generating Grasping Poses in Unstructured Environments. No. CN 116720072 A.

✓ Zhuang, C., **Niu, W.,** Zhu, Z., Xiong, Z., & Zhu, X. (2024). The Control Method for Robotic Grasping Based on a Customizable Grasping Dataset. No. CN 118322206 A.

RESEARCH EXPERIENCE

☐ **2022.09-Present. Methods for Model-Free Heterogeneous Elastic Grasping Operations.**

National Natural Science Foundation of China Project, supervised by Prof. Chungang Zhuang And Prof. Masaki Yamakita.

My Work: Application of graph convolutional network in point cloud-based grasping pose generation, Mechanical theoretical analysis of the grasping process, Robotic grasping dataset.

Research Output: Three journal papers, one conference paper and three China patents.

☐ **2022.06-2023.07. Intelligent Recognition Method and Application for Special Electrical Diagrams.**

International School-Enterprise Cooperation Project (SJTU- Siemens), supervised by Prof. Chungang Zhuang.

My Work: Intelligent recognition of components, Extraction of table information, generation of structured documents, Deep learning model training.

Research Output: According to the agreement, all intellectual property rights belong to the company. This project was showcased as part of Siemens' intelligent distribution solutions at the China International Industry Fair.

☐ **2022.06-2023.07. Optimization of Industrial Robot Operation Mechanism for Flexible Precision Assembly Tasks.**

National Natural Science Foundation of China Project (Joint Fund), supervised by Prof. Chungang Zhuang.

My Work: High-precision intelligent recognition of micro screws and screw holes in mobile phone PCB boards, Pose estimation of industrial parts.

Research Output: One journal paper and one conference paper.

HONORS & AWARDS

✓ JASSO Scholarship. In: Tokyo Institute of Technology (April, 2024)

✓ Graduate National Scholarship. In: Shanghai Jiao Tong University (September, 2023)

✓ Excellent Undergraduate Thesis (Top 1%). In: Xi'an Jiao Tong University (July, 2022)

✓ Outstanding Graduate Student of Shaanxi Province. In: Xi'an Jiao Tong University (July, 2022)

✓ First Prize: Challenge Cup National Competition. In: Xi'an Jiao Tong University (April, 2022)

✓ Shangyin Elite Student Scholarship. In: Xi'an Jiao Tong University (September, 2021)

PROFESSIONAL SKILLS

- **Hardware:** UR Robot Platform; PhotoNeo Industrial Camera; Signal Generator
- **Software:** VScode; MATLAB; AutoCAD; SolidWorks; COMSOL
- **Programming Language:** Python (Proficient); MATLAB (Basic); C++ (Basic)
- **Framework:** PyTorch (Proficient); OpenCV (Proficient); PyBullet (Proficient); TensorFlow (Basic); Issac Lab (Basic)