Yiming Li

Robot vision researcher working on 6-DoF grasping in clutter from a single view

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Education

PhD in Computer Science, Swansea University 2021 – 2026
- Thesis: *Learning Robust and Generalizable 6-DoF Grasping in Cluttered Scenes from Visual Input*
- Passed with no corrections. Supervisor Prof. Xianghua Xie

MSc in Advanced Computer Science, Swansea University 2019 – 2021
- Merit; dissertation awarded Distinction

Positions

Research Assistant, DEFEND Impact project, Swansea University 2026 – present
- UKFin+ Impact Funding, GBP 15,000, one of two projects funded; led by Dr Nicholas Micallef (Swansea University) with Dr Sayan Sarcar (Birmingham City University)
- Engaged community, council and public-sector stakeholders in workshops and supported the successful bid
- Co-designed participant questionnaires and engagement activities; built the study app (Node.js, Docker) and tutorial videos
- Contributed to project reports and to communicating findings to non-technical audiences

Teaching Assistant, Department of Computer Science, Swansea University 2021 – 2025
- Deep learning and machine learning modules: Computer Vision and Deep Learning; Big Data and Machine Learning; Big Data and Data Mining; Advanced Topics in AI and Cyber Security
- Lab solutions, coursework marking and viva assessments; evaluated more than 30 MSc research proposals (2023)

Publications

ACE-Grasp: Aleatoric Ambiguity Modeling via Consistency and Exploration for Grasping 2026
Yiming Li, Xianghua Xie
International Conference on Pattern Recognition (ICPR 2026), LNCS 16821, pp. 341-355. **Oral**.
10.1007/978-3-032-31438-3_23

Gripper Placement Matters: Bidirectional Constrained Spatial Grasp Density Field for Grasp Generation in Cluttered Scenes 2026
Yiming Li, Chen Hu, Yue Yang, Xianghua Xie, Hanchi Ren
IEEE International Conference on Advanced Robotics and Mechatronics (ICARM 2026). **Oral**.

Text-based three-dimensional geometric person retrieval 2026
Fanzhi Jiang, Kexin Wang, Hanchi Ren, **Yiming Li**, Liumei Zhang, Yuanjiao Hu, Xianghua Xie, Su Yang
Engineering Applications of Artificial Intelligence, vol. 171, 114224. 10.1016/j.engappai.2026.114224

AAO-Grasp: Diffusion-Enhanced Object-Level Grasp All at Once 2025
Yiming Li, Hanchi Ren, Yue Yang, Xianghua Xie
International Conference on Robotic Computing and Communication (RoboticCC 2025), pp. 108-111.
10.1109/RoboticCC68732.2025.00030

Recognizing Robotic Components in Complex Environment 2025
Hanchi Ren, **Yiming Li**, Yunying Wang, Nurhan Bulus Guran, Chen Hu, Yue Yang, Yueyue Hu, Junyan Hu, Jingjing Deng, Xianghua Xie
International Conference on Robotic Computing and Communication (RoboticCC 2025), pp. 92-99.
10.1109/RoboticCC68732.2025.00024

Triplane Grasping: Efficient 6-DoF Grasping with Single RGB Images 2025
Yiming Li, Hanchi Ren, Yue Yang, Jingjing Deng, Xianghua Xie
IEEE International Conference on Advanced Robotics and Mechatronics (ICARM 2025), pp. 1-7. **Oral**.
10.1109/ICARM65671.2025.11293550

Gradients Stand-in for Defending Deep Leakage in Federated Learning 2024
Yi Hu, Hanchi Ren, Chen Hu, **Yiming Li**, Jingjing Deng, Xianghua Xie
International Conference on Computing in Natural Sciences, Biomedicine and Engineering (COMCONF 2024), pp. 53-64. 10.1109/COMCONF63340.2024.00017

CenterSAM: Fully Automatic Prompt for Dense Nucleus Segmentation 2024
Yiming Li, Hanchi Ren, Jingjing Deng, Xiaoke Ma, Xianghua Xie
IEEE International Symposium on Biomedical Imaging (ISBI 2024), pp. 1-5. 10.1109/ISBI56570.2024.10635872

Software and Data

- GraspPanda (2026): open-source toolbox running six published 6-DoF grasp detectors in one pipeline, with swappable stages and an evaluator equal to graspnetAPI on 1,592 frames. 182 test files, CI, 55 pages of documentation. Apache-2.0, alpha
- RASD (2025): Robotic Arm Segmentation Dataset of 3,269 manually annotated images

Talks

- Oral, *ACE-Grasp*, ICPR 2026, Lyon, France
- Oral, *Gripper Placement Matters*, ICARM 2026, Paris, France
- Oral, *Triplane Grasping*, ICARM 2025, Portsmouth, UK
- Tutorial, *Vision-Based Robotic Arm Grasping: From Pixels to Executable Actions*, Summer School 2026
- Posters: IROS 2025 (late-breaking), Hangzhou; ICRA 2025 (late-breaking), Atlanta; ISBI 2024, Athens

Leadership

- Coordinated the 10-person, cross-institution team that built RASD: image screening, CVAT server administration, task allocation and quality reviews
- Led a four-person research team on vision-based grasping, covering grasp detection, affordance prediction, dual-arm calibration and vision-language task planning
- Mentored two undergraduate projects; organised a weekly deep-learning reading group

Academic Service

- Programme committee: ECoR 2026; EPIA 2026; AIiH 2025, 2026
- Session chair: Robotic Vision, RoboticCC 2025
- Reviewer: ICRA 2025, 2026; IROS 2025, 2026; ICPR 2026; ICARM 2025, 2026; RoboticCC 2025; ISBI 2024; *Robotica IET Computer Vision*
- Webmaster, IEEE Student Branch, Swansea University

Technical Skills

Deep learning: Python, PyTorch, MinkowskiEngine; SAM, CLIP, DINOv2 and PTv3 encoders; diffusion models; training and evaluation pipelines; porting published methods stage by stage

3D vision: RGB-D perception, point clouds, single-view reconstruction, triplane and Gaussian representations; multi-camera calibration and point-cloud fusion with OpenCV and Open3D

Robotics: 6-DoF grasp detection; real-arm experiments on UFactory xArm 7 and Lite 6 with RealSense D435i and Kinect; PyBullet, URDF

Data and evaluation: dataset building and annotation quality control (CVAT); AP, success rate, Chamfer distance, IoU; ablation studies; NumPy, pandas, matplotlib

Engineering: Linux GPU servers, Git, pytest, GitHub Actions, packaging, mkdocs; Docker and Node.js at prototype level