

Ruijie Ren

2800 Kgs. Lyngby, Denmark
ruijieren98@gmail.com • +45 50305516 • Homepage

EDUCATION	Waseda University PhD in Computer Science and Engineering Supervisor: Prof. Edgar Simo-Serra	2023 - 2026
	Technical University of Denmark Master of Science in Autonomous Systems <i>Major GPA: 11.6/12.0, Cumulative GPA: 10.9/12.0</i> Supervisor: Prof. Jeppe Revall Frisvad	2021 – 2023
	University of Leeds Bachelor of Engineering in Mechanical Engineering with Honours <i>First Class Honour (Average Score: 80.9, UK Grading System)</i>	2016 – 2020
	Southwest Jiaotong University Bachelor of Engineering in Mechanical Engineering* <i>GPA:4.0/4.0 (China Grading System)</i> *This degree is a dual degree with University of Leeds	2016 – 2020

- PUBLICATIONS** [1] Aoran Xiao, Jiaying Huang, Weihao Xuan, **Ruijie Ren**, Kangcheng Liu, Dayan Guan, Shijian Lu, "3D Semantic Segmentation in the Wild: Learning Generalized Models for Adverse Conditions Point Clouds", *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)*, 2023. [[pdf](#)]
- [2] **Ruijie Ren**^{*}, Mohit Gurnani Rajesh^{*}, Jordi Sanchez Riera, Adrian Lopez Rodriguez, Fan Zhang, Yurun Tian, Guillem Alenyà, Antonio Agudo, Yiannis Demiris, Krystian Mikolajczyk, Francesc Moreno Noguera, "Grasp-Oriented Fine-grained Cloth Segmentation without Real Supervision", *International Conference on Machine Vision and Applications (ICMVA)*, 2023. [[pdf](#)]
- [3] Weihao Xuan, **Ruijie Ren**, Siyuan Wu, Changhao Chen, "MaskVO: Self-Supervised Visual Odometry with Learnable Dynamic Mask", *IEEE/SICE International Symposium on System Integration (SII)*, 2022. [[pdf](#)]
- [4] Yixuan Lin, Weihao Xuan, **Ruijie Ren**, Ji Liu, "On a Discrete-Time Network SIS Model with Opinion Dynamics", *IEEE Conference on Decision and Control (CDC)*, 2021. [[pdf](#)]
- [5] Weihao Xuan, **Ruijie Ren**, Chutian Wang, "Multi-agent Interactive Prediction under Challenging Driving Scenarios", *IEEE International conference on Control, Automation and Robotics*, 2021. (**Best paper finalist.**) [[pdf](#)] [[video](#)]
- [6] Weihao Xuan, **Ruijie Ren**, Philip E. Paré, Mengbin Ye, Sebastian Ruf, Ji Liu, "On a Network SIS Model with Opinion Dynamics", *International Federation of Automatic Control World Congress (IFAC)*, 2020. [[pdf](#)] [[video](#)]
- (* denotes equal contribution.)

KEY SKILLS *Programming Languages:* Python, MATLAB, LabView, C/C++, JavaScript
Libraries: PyTorch, TensorFlow, OpenCV.
Tools: L^AT_EX, Microsoft Office, Git, Docker, Linux
Robotics: ROS, SolidWorks.

RESEARCH EXPERIENCE	<p>Grasp-Oriented Fine-grained Cloth Segmentation without Real Supervision <i>Supervised by Prof. Francesc Moreno-Noguer</i> 03/2021 – 09/2021</p> <ul style="list-style-type: none"> • Generate large and realistic synthetic data and collect a mid-size real dataset of deformed T-shirts. • Explored the problem of fine-grained edge segmentation in depth maps of highly deformed clothes. • Explored the limits of domain adaptation strategies that leverage uniquely on supervision from synthetic annotations. <p>MaskVO: Self-Supervised Visual Odometry with Learnable Dynamic Mask <i>Supervised by Dr. Changhao Chen, Postdoc at University of Oxford</i> 03/2020 – 03/2021</p> <ul style="list-style-type: none"> • Proposed a novel learnable mask network for a self-supervised VO system, one that provides dynamic masks to remove the impacts from environmental issues. • Introduced a temporal-aware VO framework that exploits the temporal dependencies of visual motions from image sequences, and extracts suitable features for pose estimates. • Conducted experiments against existing scale-consistent self-supervised VO systems, in which our model outperforms them. <p>On a Network SIS Model with Opinion Dynamics <i>Supervised by Prof. Ji Liu from Stony Brook University</i> 07/2017 – 01/2021</p> <ul style="list-style-type: none"> • Proposed a novel SIS model coupled with opinion dynamics. • Analyze the model by characterizing its limiting behavior, equilibria, and their stability, by using MATLAB and nonlinear system theory. • Modified the continuous-time model into discrete-time model which is more realistic. • Two publications in IFAC world congress 2020 and CDC 2021 respectively.
WORK EXPERIENCE	<p>Nanyang Technological University (NTU) Singapore <i>Research Assistant supervised by Prof. Shijian Lu</i> 01/2022 - Present</p> <ul style="list-style-type: none"> • Reproduced state-of-the-art domain adaptation methods in object detection. • Worked on cross-modality Domain Adaptation algorithms among Pinehole-Panoramic cameras. <p>Institut de Robòtica i Informàtica industrial, IRI (CSIC-UPC) Barcelona, Spain <i>Research Assistant supervised by Prof. Francesc Moreno-Noguer</i> 03/2021 - 05/2022</p> <ul style="list-style-type: none"> • Tackled the problem of fine-grained region detection in deformed clothes using only a depth image. • Propose a multilayered domain adaptation (DA) strategy instead of real data supervision. • Tackled the challenging problem of 3D reconstruction on objects with high transparency.
PROFESSIONAL DEVELOPMENT	<p>MicroMasters in Robotics [Certificate] <i>Awarded from University of Pennsylvania (in collaboration with edX)</i> 2018 - 2020</p> <p>Courses:</p> <ul style="list-style-type: none"> • Kinematics and Mathematical Foundations. • Vision Intelligence and Machine Learning. • Dynamics and Control. • Locomotion Engineering.
EVENTS	<p>IEEE RAS Winter School on SLAM in Deformable Environments <i>Held by University of Technology Sydney (Online)</i> 07/2021</p> <ul style="list-style-type: none"> • Participated cutting-edge seminars focused on research of robot localisation, mapping and navigation in deformable environments. • Completed workshop project and awarded 3rd Place. [Code] <p>Robotic Vision Summer School <i>Held by Australian Center for Robotic Vision</i> 02/2019</p>

- Participated cutting-edge seminars and discussed state-of-art ideas with researchers and Ph.D. candidates from top universities.
- Collected data and trained vision-based autonomous driving system by Raspberry Pi. (Awarded 2nd Place in the workshop competition). [[Code](#)]

TEACHING

Introduction to Machine Learning and Data Mining

Teaching Assistant, Technical University of Denmark

Fall 2022