

Yumeng Li

DOCTORAL RESEARCHER · RESEARCH SCIENTIST

Tübingen, Germany

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Education

University of Mannheim

Ph.D. in Computer Science

Mannheim, Germany

01/2022 – 12/2024 (Expected)

- Focus on Generative Models (e.g., GAN & Diffusion Model), Out-of-Distribution Generalization and Vision-Language Models
- Advisors: Prof. Margret Keuper, Dr. Dan Zhang (Bosch Center for AI) and Dr. Anna Khoreva (Bosch Center for AI)

RWTH Aachen University

M.Sc. in Simulation Sciences

Aachen, Germany

10/2019 – 11/2021

- GPA: 1.3/1.0 (1.0 is the best)
- Thesis: Information Aggregation for 6D Pose Estimation
Focus on cross-category level 6D pose estimation based on RGB-D image. By leveraging meta-learning, i.e., Neural Processes, and Graph Neural Networks (GNNs), to improve generalization on unseen novel objects

Beijing Institute of Technology (BIT)

B.Sc. in Vehicle Engineering

Beijing, China

10/2015 – 08/2019

- GPA: 90.5/100 (Top 1 of the major)
- Joined the student exchange program at RWTH Aachen University (10/2018 – 08/2019)
- Thesis: Bayesian Optimization Approach for Stochastic Pedestrian Collision Avoidance in a MPC-based Trajectory Planning (Done at RWTH Aachen University during the exchange)

Research Experience

Bosch Center for Artificial Intelligence

Doctoral Researcher

Renningen, Germany

01/2021 - Present

- Developed new algorithms of Generative Modeling, i.e., GANs and Diffusion Models.
- Investigated synthetic data augmentation for real-world applications, e.g., autonomous driving.
- Improved out-of-distribution generalization of semantic segmentation models.

The Laboratory for Machine Tools and Production Engineering (WZL), RWTH

Student Research Assistant

Aachen, Germany

12/2019 – 05/2020

- Implemented the reinforcement learning algorithm, e.g., dynamic movement primitive (DMP) using Python and TensorFlow.
- Developed DMP-based trajectory learning software, and simulated in ROS MoveIt and Gazebo.

Production Engineering of E-Mobility (PEM), RWTH

Student Research Assistant

Aachen, Germany

03/2019 – 08/2019

- Developed Model Predictive Control based trajectory planner with collision cone approach, to avoid collision with stochastic obstacles.
- Employed Bayesian Optimization for hyperparameter tuning in the trajectory planner.
- Implemented Unscented Kalman Filter for noisy data filtering.

Scene Simulation Lab, BIT

Student Research Assistant

Beijing, China

05/2017 – 04/2018

- Developed Leap Motion virtual hands using C++ and OpenSceneGraph (OSG) for accurate control of viewing angle, object posture, and precise grasping of multiple objects.
- Conducted simulation in Unity3D.

Publications

- 1 VSTAR: GENERATIVE TEMPORAL NURSING FOR LONGER DYNAMIC VIDEO SYNTHESIS
Yumeng Li, William Beluch, Margret Keuper, Dan Zhang, Anna Khoreva 2024
Preprint
- 2 ADVERSARIAL SUPERVISION MAKES LAYOUT-TO-IMAGE DIFFUSION MODELS THRIVE
Yumeng Li, Margret Keuper, Dan Zhang, Anna Khoreva 2024
ICLR
- 3 DIVIDE & BIND YOUR ATTENTION FOR IMPROVED GENERATIVE SEMANTIC NURSING
Yumeng Li, Margret Keuper, Dan Zhang, Anna Khoreva 2023
BMVC (Oral)
- 4 ANOMALY-AWARE SEMANTIC SEGMENTATION VIA STYLE-ALIGNED OOD AUGMENTATION
Dan Zhang, Kaspar Sakmann, William Beluch, Robin Hutmacher, Yumeng Li 2023
ICCV Workshop
- 5 INTRA- & EXTRA-SOURCE EXEMPLAR-BASED STYLE SYNTHESIS FOR IMPROVED DOMAIN GENERALIZATION
Yumeng Li, Dan Zhang, Margret Keuper, Anna Khoreva 2023
IJCV
- 6 INTRA-SOURCE STYLE AUGMENTATION FOR IMPROVED DOMAIN GENERALIZATION
Yumeng Li, Dan Zhang, Margret Keuper, Anna Khoreva 2023
WACV
- 7 CATEGORY-AGNOSTIC 6D POSE ESTIMATION WITH CONDITIONAL NEURAL PROCESSES
Yumeng Li, Ning Gao*, Hanna Ziesche, Gerhard Neumann* 2022
CVPR Workshop

Patents

- METHOD FOR ASCERTAINING A 6D POSE OF AN OBJECT 2023
Ning Gao, Yumeng Li, Hanna Ziesche, Gerhard Neumann US Patent

Skills

Software Engineering Python, PyTorch, Git, LSF & SLURM, C/C++, Matlab, ROS, C#
Language Chinese (Native), English (Fluent), German (Intermediate)

Honors & Awards

2020	Germany Scholarship	Aachen, Germany
2019	Outstanding Graduate of Beijing , Beijing Municipal Education Commission	Beijing, China
2016 & 2018	National Scholarship (Top 2%) , Ministry of Education of the People's Republic of China	Beijing, China
2018	Innovation Scholarship (Top 1%) , Ministry of Industry and Information Technology of China	Beijing, China

Miscellaneous

Reviewer: ICML 2023, BMVC 2023, CVPR 2024, ECCV 2024

Teaching & Supervision:

- Master Thesis supervision: Uğur Ali Kaplan
- Seminar: Large-scale Generative Models: Prospects and Limitations (Summer Term 2023)
- Seminar Computer Vision: Recent Advances in Generative Models (Winter Term 2022)