

# Yumeng Li

DOCTORAL RESEARCHER · PASSIONATE ABOUT GENERATIVE AI

Tübingen, Germany

✉ liyumeng07@outlook.com | 🏠 yumengli007.github.io | 🌐 YumengLi007 | 📞 Yumeng Li | 📧 yumeng-li-007 | 🐦 @YumengLi\_007

## 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), Vision-Language Models and Out-of-Distribution Generalization
- 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 (Done at Bosch Center for AI)  
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

01/2022 - Present

- Developed new algorithms of Generative Modeling, i.e., GANs and Diffusion Models, for image & video synthesis.
- 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 Aachen

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 Aachen

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, Beijing Institute of Technology

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

---

- VSTAR: GENERATIVE TEMPORAL NURSING FOR LONGER DYNAMIC VIDEO SYNTHESIS  
*Yumeng Li, William Beluch, Margret Keuper, Dan Zhang, Anna Khoreva* 2024  
Preprint
- LABEL-FREE NEURAL SEMANTIC IMAGE SYNTHESIS  
*Jiayi Wang, Kevin A. Laube, Yumeng Li, Jan H. Metzen, Shin-I Cheng, Julio Borges, Anna Khoreva* 2024  
ECCV
- ADVERSARIAL SUPERVISION MAKES LAYOUT-TO-IMAGE DIFFUSION MODELS THRIVE  
*Yumeng Li, Margret Keuper, Dan Zhang, Anna Khoreva* 2024  
ICLR
- DOMAIN-AWARE FINE-TUNING OF FOUNDATION MODELS  
*Ugur Ali Kaplan, Margret Keuper, Anna Khoreva, Dan Zhang, Yumeng Li* 2024  
ICML Workshop
- DIVIDE & BIND YOUR ATTENTION FOR IMPROVED GENERATIVE SEMANTIC NURSING  
*Yumeng Li, Margret Keuper, Dan Zhang, Anna Khoreva* 2023  
BMVC (Oral)
- ANOMALY-AWARE SEMANTIC SEGMENTATION VIA STYLE-ALIGNED OOD AUGMENTATION  
*Dan Zhang, Kaspar Sakmann, William Beluch, Robin Huttmacher, Yumeng Li* 2023  
ICCV Workshop
- INTRA- & EXTRA-SOURCE EXEMPLAR-BASED STYLE SYNTHESIS FOR IMPROVED DOMAIN GENERALIZATION  
*Yumeng Li, Dan Zhang, Margret Keuper, Anna Khoreva* 2023  
IJCV
- INTRA-SOURCE STYLE AUGMENTATION FOR IMPROVED DOMAIN GENERALIZATION  
*Yumeng Li, Dan Zhang, Margret Keuper, Anna Khoreva* 2023  
WACV
- CATEGORY-AGNOSTIC 6D POSE ESTIMATION WITH CONDITIONAL NEURAL PROCESSES  
*Yumeng Li\*, Ning Gao\*, Hanna Ziesche, Gerhard Neumann* 2022  
CVPR Workshop

## Patents

---

- METHOD OF AND APPARATUS FOR PROCESSING DIGITAL IMAGE DATA  
*Yumeng Li, Anna Khoreva, Dan Zhang* 2024  
US Patent
- DEVICE AND METHOD FOR DETERMINING AN ENCODER CONFIGURED IMAGE ANALYSIS  
*Yumeng Li, Anna Khoreva, Dan Zhang* 2024  
US Patent
- METHOD FOR ASCERTAINING A 6D POSE OF AN OBJECT  
*Ning Gao, Yumeng Li, Hanna Ziesche, Gerhard Neumann* 2023  
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        | <b>Germany Scholarship</b>  | Aachen, Germany |
| 2019        | <b>Outstanding Graduate of Beijing</b> , Beijing Municipal Education Commission                   | Beijing, China  |
| 2016 & 2018 | <b>National Scholarship (Top 2%)</b> , Ministry of Education of the People's Republic of China    | Beijing, China  |
| 2018        | <b>Innovation Scholarship (Top 1%)</b> , Ministry of Industry and Information Technology of China | Beijing, China  |

## Miscellaneous

---

**Reviewer:** ICML 2023, BMVC 2023, CVPR 2024, ECCV 2024, Computer Vision and Image Understanding (Journal)

### Teaching & Supervision:

- Student Supervision: Uğur Ali Kaplan, Volodymyr Havrylov
- Seminar: Large-scale Generative Models: Prospects and Limitations (Summer Term 2023)
- Seminar Computer Vision: Recent Advances in Generative Models (Winter Term 2022)