

# YAOYAO LIU

**Email:** [yliu538@jhu.edu](mailto:yliu538@jhu.edu) **Homepage:** <https://www.cs.jhu.edu/~yyliu/>  
**Phone:** (857) 209-8688 **Address:** 3400 N Charles St, Baltimore, MD 21218-2625

## RESEARCH INTERESTS

---

My research lies at the intersection of computer vision and machine learning – with a special focus on building intelligent visual systems that are continual and data-efficient. My research interests include continual learning, few-shot learning, semi-supervised learning, generative models, 3D geometry models, and medical imaging.

## APPOINTMENT

---

**Johns Hopkins University** Feb. 2023 - present  
Postdoctoral Fellow  
Advisor: Prof. Alan L. Yuille

## EDUCATION

---

**Max Planck Institute for Informatics** Feb. 2020 - Jan. 2023  
Ph.D. in Computer Science (summa cum laude)  
Advisors: Prof. Bernt Schiele & Prof. Qianru Sun

**Tianjin University** Sep. 2011 - Jul. 2015  
B.S. in Electrical Engineering

## OTHER RESEARCH EXPERIENCE

---

**University of Oxford** Jun. 2022 - Jan. 2023  
Visiting Ph.D. Student  
Visual Geometry Group (VGG)  
European Laboratory for Learning & Intelligent Systems (ELLIS) Program  
Advisors: Prof. Christian Rupprecht & Prof. Andrea Vedaldi

**National University of Singapore** Jun. 2018 - Sep. 2019  
Research Intern  
Advisors: Prof. Tat-Seng Chua & Prof. Qianru Sun

**Tianjin Univeristy** Sep. 2015 - May 2018  
Research Assistant  
Advisors: Prof. Yuting Su & Prof. An-An Liu

## HONORS & AWARDS

---

**CVPR 2023 Doctoral Consortium** 2023  
Awarded to top 13% applicants.

**Top 120 Most Cited CVPR Papers over the Last Five Years** 2023  
Ranked by Google Scholar Metrics [[Link](#)].

<b>Oral Presentation at AAAI 2023</b> Top 9.8% acceptance rate.	2023
<b>Selected by the ELLIS Ph.D. Program</b> ELLIS Ph.D. Program supports outstanding young researchers in machine learning in Europe.	2022
<b>Selected by the International Computer Vision Summer School (ICVSS)</b> Top 23.8% acceptance rate.	2022
<b>Oral Presentation at CVPR 2020</b> Top 4% acceptance rate.	2020
<b>Featured in the National University of Singapore News</b> My first-author (equal contribution) work was featured in <a href="#">[Link]</a> .	2019
<b>Tianjin University International Exchange Scholarship</b> Awarded to one student per year in the School of Electrical and Information Engineering.	2018
<b>Outstanding Graduate at Qiushi Honors College, Tianjin University</b>	2015
<b>Outstanding Undergraduate Student Program at Tianjin University</b>	2013-2015

## PUBLICATIONS [\[Google Scholar\]](#)

---

1. Wufei Ma\*, Qihao Liu\*, Jiahao Wang\*, Angtian Wang, Yaoyao Liu<sup>#</sup> (corresponding author), Adam Kortylewski, Alan Yuille “Adding 3D Geometry Control to Diffusion Models,” Under review. [\[PDF\]](#)
2. **[MICCAI 2023]** Yixiao Zhang, Xinyi Li, Huimiao Chen, Alan Yuille, Yaoyao Liu\* (corresponding author), Zongwei Zhou\*. “Continual Learning for Abdominal Multi-Organ and Tumor Segmentation,” *International Conference on Medical Image Computing and Computer-Assisted Intervention*, 2023. **(Early Accept)** [\[PDF\]](#)
3. **[CVPR 2023]** Yaoyao Liu, Bernt Schiele, Andrea Vedaldi, Christian Rupprecht. “Continual Detection Transformer for Incremental Object Detection,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2023. [\[PDF\]](#)
4. **[CVPR 2023]** Zilin Luo, Yaoyao Liu, Bernt Schiele, Qianru Sun. “Class-Incremental Exemplar Compression for Class-Incremental Learning,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2023. [\[PDF\]](#)
5. **[AAAI 2023]** Yaoyao Liu, Yingying Li, Bernt Schiele, Qianru Sun. “Online Hyperparameter Optimization for Class-Incremental Learning,” *Thirty-seventh AAAI Conference on Artificial Intelligence*, 2023. [\[PDF\]](#) **(Oral)**
6. **[TPAMI 2022]** Qianru Sun\*, Yaoyao Liu\* (equal contribution), Zhaozheng Chen, Tat-Seng Chua, Bernt Schiele. “Meta-Transfer Learning through Hard Tasks,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Volume 44, Number 3, 2022. [\[PDF\]](#)
7. **[NeurIPS 2021]** Yaoyao Liu, Bernt Schiele, Qianru Sun. “RMM: Reinforced Memory Management for Class-Incremental Learning,” *Thirty-fifth Conference on Neural Information Processing Systems*, 2021. [\[PDF\]](#)
8. **[CVPR 2021]** Yaoyao Liu, Bernt Schiele, Qianru Sun. “Adaptive Aggregation Networks for Class-Incremental Learning,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2021. [\[PDF\]](#)

9. [CVIU 2021] Xinzhe Li, Jianqiang Huang, Yaoyao Liu, Qin Zhou, Shibao Zheng, Bernt Schiele, Qianru Sun. “Learning to Teach and Learn for Semi-supervised Few-shot Image Classification,” *Computer Vision and Image Understanding*, Volume 212, 2021. [PDF]
10. [TNNLS 2021] Yaoyao Liu, Qianru Sun, Xiangnan He, An-An Liu, Yuting Su, Tat-Seng Chua. “Generating Face Images with Attributes for Free,” *IEEE Transactions on Neural Networks and Learning Systems*, Volume 32, Number 6, 2021. [PDF]
11. [ECCV 2020] Yaoyao Liu, Bernt Schiele, Qianru Sun. “An Ensemble of Epoch-wise Empirical Bayes for Few-shot Learning,” *European Conference on Computer Vision*, 2020. [PDF]
12. [CVPR 2020] Yaoyao Liu, An-An Liu, Yuting Su, Bernt Schiele, Qianru Sun. “Mnemonics Training: Multi-Class Incremental Learning without Forgetting,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2020. [PDF] (Oral)
13. [NeurIPS 2019] Xinzhe Li, Qianru Sun, Yaoyao Liu, Shibao Zheng, Qin Zhou, Tat-Seng Chua, Bernt Schiele. “Learning to Self-Train for Semi-Supervised Few-Shot Classification,” *Thirty-third Conference on Neural Information Processing Systems*, 2019. [PDF]
14. [CVPR 2019] Qianru Sun\*, Yaoyao Liu\* (equal contribution), Tat-Seng Chua, Bernt Schiele. “Meta-Transfer Learning for Few-Shot Learning,” *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2019. [PDF] (More than 1000 citations)

## INVITED TALKS

---

- **Learning from Imperfect Data: Continual Learning and Few-shot Learning.**  
 Computational Imaging Seminar, Purdue University, August 2023.  
 Vision and Graphics Seminar, Massachusetts Institute of Technology, April 2023.  
 External Speaker Series, University of Illinois Urbana-Champaign, April 2023.  
 VIGR Seminar, Columbia University, March 2023.  
 Computational Cognition, Vision, and Learning Lab, Johns Hopkins University, January 2023.  
 Visual Geometry Group (VGG), University of Oxford, November 2022.  
 Fudan Vision and Learning Laboratory, Fudan University, September 2022.  
 NExT++ Research Center, National University of Singapore, Singapore, April 2022.  
 Singapore Management University, Singapore, September 2020.
- **Meta-transfer Learning for Few-shot Learning.**  
 École Polytechnique Fédérale de Lausanne (EPFL), March 2023.
- **Learning to Self-train for Semi-supervised Few-shot Classification.**  
 NeurIPS Official Meetups, Beijing, China, December 2019.
- **Multi-class Incremental Learning.**  
 Nanyang Technological University, Singapore, July 2019.

## PATENT

---

“Multi-label Video Event Detection Method Based on LSTM Networks,” China Patent, CN107818307B.

## TEACHING

---

- **Head Teaching Assistant** at Universität des Saarlandes: High Level Computer Vision. 2022.

- **Teaching Assistant** at Universität des Saarlandes: High Level Computer Vision. 2021.

## SERVICES & ACTIVITIES

---

- **Organizer:** Website Chair for British Machine Vision Conference (BMVC) 2022 and 2023, Website Master for ACM International Conference on Multimedia in Asia (MM Asia) 2020.
- **Area Chair:** IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024, International Conference on Learning Representations (ICLR) 2024, The International Conference on Artificial Intelligence and Statistics (AISTATS) 2023, The Conference on Uncertainty in Artificial Intelligence (UAI) 2023, BMVC 2023.
- **Senior Program Committee Member:** International Joint Conference on Artificial Intelligence (IJCAI) 2021.
- **Student Mentor:** CVPR 2022.
- **Volunteer:** CVPR 2022, ICLR 2021, AAAI Conference on Artificial Intelligence (AAAI) 2021, Annual Conference on Neural Information Processing Systems (NeurIPS) 2020 and 2022.
- **Conference Reviewer:** CVPR 2021-2023, IEEE/CVF International Conference on Computer Vision (ICCV) 2021 and 2023, European Conference on Computer Vision (ECCV) 2022, NeurIPS 2020-2022, International Conference on Machine Learning (ICML) 2021-2023, ICLR 2022-2023, AAAI 2021-2024, IJCAI 2021-2024, ACM International Conference on Multimedia (MM) 2021-2023, MM Asia 2020-2021, IEEE International Conference on Multimedia and Expo (ICME), The Asian Conference on Machine Learning (ACML) 2021-2022, etc.
- **Journal Reviewer:** IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), International Journal of Computer Vision (IJCV), IEEE Transactions on Image Processing (TIP), IEEE Transactions on Knowledge and Data Engineering (TKDE), IEEE Transactions on Multimedia (TMM), IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM), etc.