

YAOYAO LIU

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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 Postdoctoral Fellow Advisor: Prof. Alan L. Yuille	Feb. 2023 - present
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EDUCATION

Max Planck Institute for Informatics Ph.D. in Computer Science (summa cum laude) Advisors: Prof. Bernt Schiele & Prof. Qianru Sun	Feb. 2020 - Jan. 2023
Tianjin University B.S. in Electrical Engineering	Sep. 2011 - Jul. 2015

OTHER RESEARCH EXPERIENCE

University of Oxford Visiting Ph.D. Student Visual Geometry Group (VGG) European Laboratory for Learning & Intelligent Systems (ELLIS) Program Advisors: Prof. Christian Rupprecht & Prof. Andrea Vedaldi	Jun. 2022 - Jan. 2023
National University of Singapore Research Intern Advisors: Prof. Tat-Seng Chua & Prof. Qianru Sun	Jun. 2018 - Sep. 2019
Tianjin University Research Assistant Advisors: Prof. Yuting Su & Prof. An-An Liu	Sep. 2015 - May 2018

HONORS & AWARDS

CVPR 2023 Doctoral Consortium with Travel Award Awarded to top 13% applicants.	2023
Top 120 Most Cited CVPR Papers over the Last Five Years Ranked by Google Scholar Metrics [Link].	2023

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

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

1. **[ICLR 2024]** Wufei Ma*, Qihao Liu*, Jiahao Wang*, Xiaoding Yuan, Angtian Wang, Yi Zhang, Zihao Xiao, Guofeng Zhang, Beijia Lu, Ruxiao Duan, Yongrui Qi, Adam Kortylewski, [Yaoyao Liu](#)[✉] (corresponding author), Alan Yuille. “Generating Images with 3D Annotations Using Diffusion Models,” *International Conference on Learning Representations*, 2024. [\[PDF\]](#) **(Spotlight)**
2. **[WACV 2024]** [Yaoyao Liu](#), Yingying Li, Bernt Schiele, Qianru Sun. “Wakening Past Concepts without Past Data: Class-Incremental Learning from Online Placebos,” *IEEE/CVF Winter Conference on Applications of Computer Vision*, 2024. [\[PDF\]](#)
3. **[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. [\[PDF\]](#) **(Early Accept)**
4. **[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. [\[PDF\]](#)
5. **[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. [\[PDF\]](#)
6. **[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)**
7. **[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. [\[PDF\]](#)

8. [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]
9. [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]
10. [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]
11. [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]
12. [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]
13. [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)
14. [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]
15. [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 1,200 citations)

INVITED TALKS

- **Learning from Imperfect Data: Continual Learning and Few-shot Learning.**
 Berkeley Artificial Intelligence Research (BAIR), UC Berkeley, Berkeley, CA. Oct 2023.
 Computational Imaging Seminar, Purdue University, West Lafayette, IN. August 2023.
 Vision and Graphics Seminar, Massachusetts Institute of Technology, Cambridge, MA. April 2023.
 External Speaker Series, University of Illinois Urbana-Champaign, Urbana, IL. April 2023.
 VIGR Seminar, Columbia University, New York, NY. March 2023.
 CCVL Lab, Johns Hopkins University, Baltimore, MD. January 2023.
 Visual Geometry Group (VGG), University of Oxford, UK. November 2022.
 Fudan Vision and Learning Laboratory, Fudan University, China. 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), Switzerland, 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 Max Planck Institute for Informatics: High Level Computer Vision (in English). 2022. [[Link](#)]
- **Student Mentor** at IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2022. [[Link](#)]
- **Teaching Assistant** at Max Planck Institute for Informatics: High Level Computer Vision (in English). 2021. [[Link](#)]
- **Teaching Assistant** at Tianjin University: Digital Image Processing. 2017.

SERVICES & ACTIVITIES

- **Organizer:** Website Chair for British Machine Vision Conference (BMVC) 2022-2024, Website Master for ACM International Conference on Multimedia in Asia (MM Asia) 2020.
- **Area Chair:** CVPR 2024, European Conference on Computer Vision (ECCV) 2024, International Conference on Learning Representations (ICLR) 2024, The International Conference on Artificial Intelligence and Statistics (AISTATS) 2023-2024, The Conference on Uncertainty in Artificial Intelligence (UAI) 2023, BMVC 2023.
- **Senior Program Committee Member:** International Joint Conference on Artificial Intelligence (IJCAI) 2021.
- **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, 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.