

# YAOYAO LIU

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## RESEARCH INTERESTS

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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 class-incremental learning, few-shot learning, semi-supervised learning, and image generation.

## EDUCATION

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**Max Planck Institute for Informatics** Feb. 2020 - Feb. 2023 (expected)

Ph.D. Candidate in Computer Science

Advisor: Prof. Bernt Schiele & Prof. Qianru Sun

**Tianjin University** Sept. 2011 - July 2015

B.S. in Electrical Engineering

## RESEARCH EXPERIENCE

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**University of Oxford** June 2022 - present

Exchange Student via the ELLIS Ph.D. Program

Advisors: Dr. Christian Rupprecht & Prof. Andrea Vedaldi

**National University of Singapore** June 2018 - Sept. 2019

Research Intern

Advisors: Prof. Tat-Seng Chua & Prof. Qianru Sun

**Tianjin University** Sept. 2015 - May 2018

Research Assistant

Advisors: Prof. Yuting Su & Prof. An-An Liu

## HONORS & AWARDS

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**Top 200 Most Cited CVPR Paper over the Last Five Years** 2022

Ranked by Google Scholar Metrics [[Link](#)]

**Selected by the ELLIS Ph.D. Program** 2022

ELLIS Ph.D. Program supports outstanding young researchers in machine learning in Europe.

**Selected to attend the International Computer Vision Summer School (ICVSS)** 2022

Top 23.8% acceptance rate

**Selected as an Oral Presentation at CVPR 2020** 2020

Top 4% acceptance rate

**Featured in the National University of Singapore News** 2019

My first-author (equal contribution) work was featured in [[Link](#)].

**Tianjin University International Exchange Scholarship** 2018

Awarded to one student per year in the School of Electrical and Information Engineering.

Outstanding Graduate at Qiushi Honors College, Tianjin University

2015

Outstanding Undergraduate Student Program at Tianjin University

2013-2015

## PUBLICATIONS

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1. [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.
2. [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]
3. [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]
4. [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]
5. [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]
6. [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]
7. [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]
8. [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*
9. [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]
10. [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 800 citations*

## INVITED TALKS

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- *Learning from Imperfect Data: Incremental Learning and Few-shot Learning*. Visual Geometry Group (VGG), University of Oxford, Oxford, November 2022.
- *Class Incremental Learning*. Fudan Vision and Learning Laboratory, Department of Computer Science, Fudan University, Shanghai, September 2022.
- *Class Incremental Learning*. NExT++ Research Center, School of Computing, National University of Singapore, Singapore, April 2022.

- *Annotation-Efficient Learning: Class-Incremental Learning and Few-Shot Learning*. School of Computing and Information Systems, Singapore Management University, Singapore, September 2020.
- *Learning to Self-Train for Semi-Supervised Few-Shot Classification*. NeurIPS Official Meetups, Beijing, December 2019.
- *Multi-Class Incremental Learning*. School of Computer Science and Engineering, Nanyang Technological University, Singapore, July 2019.

## PATENT

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

## TEACHING

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- **Teaching Assistant** at Universität des Saarlandes: High Level Computer Vision. 2021 and 2022.

## SERVICES AND ACTIVITIES

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- **Organizer:** Website Chair for British Machine Vision Conference (BMVC) 2022, Website Master for ACM International Conference on Multimedia in Asia (MM Asia) 2020.
- **Area Chair:** The International Conference on Artificial Intelligence and Statistics (AISTATS) 2023.
- **Senior Program Committee:** International Joint Conference on Artificial Intelligence (IJCAI) 2021.
- **Student Mentor:** IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2022.
- **Volunteer:** CVPR 2022, International Conference on Learning Representations (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 International Conference on Computer Vision (ICCV) 2021, European Conference on Computer Vision (ECCV) 2022, NeurIPS 2020-2022, International Conference on Machine Learning (ICML) 2021-2022, ICLR 2022-2023, AAAI 2021-2023, IJCAI 2021-2022, ACM International Conference on Multimedia (MM) 2021-2022, 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.

## REFERENCES

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