

# Yahui Liu

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## RESEARCH INTERESTS

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I am a PhD student in [Multimedia and Human Understanding Group](#) (MHUG) at the Department of Information Engineering and Computer Science of the University of Trento, Italy, supervised by [Prof. Nicu Sebe](#) and Dr. Bruno Lepri. Before that, I received B.E. degree in Photogrammetry and Remote Sensing and M.E. degree in Pattern Recognition and Intelligent System from Wuhan University in 2015 and 2018, respectively. My research interests lie in the areas of computer vision and natural language processing. Recently, I'm working on **Unsupervised Learning**, **Image Domain Translation**, and **Visual Transformers**.

## EDUCATION

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- **University of Trento** Trento, Italy  
Ph.D. student, Advisor: [Prof. Nicu Sebe](#) and [Dr. Bruno Lepri](#) Nov. 2018 - May 2022  
Thesis Defense Committee: [Vittorio Murino](#), [Zhengyou Zhang](#), and [Elisa Ricci](#)
- **Wuhan University** Wuhan, China  
M.S. in Computer Science, Advisor: [Prof. Jian Yao](#) Sep. 2015 - Mar. 2018
- **Wuhan University** Wuhan, China  
B.E. in Remote Sensing Science and Technology Sep. 2011 - Jun. 2015

## RESEARCH EXPERIENCE

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- **Research intern, Tencent AI Lab** Shenzhen, China  
with [Linchao Bao](#), and [Wei Bi](#) (Virtual Human and [Effdit](#)) 2021 - 2022
- **Research intern, Amazon Alexa AI** Berlin, Germany (Remote)  
with [Weiwei Cheng](#), and [Gianni Barlacchi](#) (Alexa News QA System) 2020
- **Research intern, Tencent AI Lab** Shenzhen, China  
with [Wei Bi](#), [Xiaojiang Liu](#), and [Shuming Shi](#) (Chitchat) 2017 - 2018

## PROFESSIONAL SERVICE

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### Program committee member

- Conference on Neural Information Processing Systems (NeurIPS) 2022
- European Conference on Computer Vision (ECCV) 2022
- International Conference on Machine Learning (ICML) 2022
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2021, 2022
- IEEE/CVF International Conference on Computer Vision (ICCV) 2021
- ACM International Conference on Multimedia (ACM MM) 2020, 2021, 2022
- International Joint Conference on Artificial Intelligence (IJCAI) 2021, 2022

### Journal reviewer

- IEEE Transactions on Industrial Informatics (TII), IEEE Geoscience and Remote Sensing Letters (GRSL), IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), Machine Vision and Applications (MVAP), IEEE Transactions on Multimedia (TMM)

\*: equal contribution

**Peer-refereed publications****Conference papers**

1. Jiannan Xiang, Huayang Li, **Yahui Liu**, Lemao Liu, Guoping Huang, Defu Lian, Shuming Shi. [Investigating Data Variance in Evaluations of Automatic Machine Translation Metrics](#). To be appeared in Findings of the Association for Computational Linguistics, 2022. **ACL 2022**
2. **Yahui Liu**, Enver Sangineto, Wei Bi, Nicu Sebe, Bruno Lepri, and Marco De Nadai. [Efficient Training of Visual Transformers with Small Datasets](#). Advances in Neural Information Processing Systems, 2021. **NeurIPS 2021**
3. **Yahui Liu**, Enver Sangineto, Yajing Chen, Linchao Bao, Haoxian Zhang, Nicu Sebe, Bruno Lepri, Wei Wang, and Marco De Nadai. [Smoothing the Disentangled Latent Style Space for Unsupervised Image-to-Image Translation](#). Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2021. **CVPR 2021**
4. **Yahui Liu**\*, Jiannan Xiang\*, Deng Cai, Huayang Li, Defu Lian and Lemao Liu. [Assessing Dialogue Systems with Distribution Distances](#). In Findings of the Association for Computational Linguistics, 2021. **ACL 2021**
5. Pierfrancesco Ardino, **Yahui Liu**, Elisa Ricci, Bruno Lepri, and Marco De Nadai. [Semantic-Guided Inpainting Network for Complex Urban Scenes Manipulation](#). In Proceedings of the International Conference on Pattern Recognition, 2020. **ICPR 2020**
6. **Yahui Liu**, Marco De Nadai, Deng Cai, Huayang Li, Xavier Alameda-Pineda, Nicu Sebe, and Bruno Lepri. [Describe What to Change: A Text-guided Unsupervised Image-to-Image Translation Approach](#). In Proceedings of ACM International Conference on Multimedia, 2020. **ACM MM 2020**
7. **Yahui Liu**\*, Raul Gomez\*, Marco De Nadai, Dimosthenis Karatzas, Nicu Sebe, and Bruno Lepri. [Retrieval Guided Unsupervised Multi-domain Image-to-Image Translation](#). In Proceedings of ACM International Conference on Multimedia, 2020. **ACM MM 2020**
8. **Yahui Liu**, Marco De Nadai, Gloria Zen, Nicu Sebe, and Bruno Lepri. [Gesture-to-Gesture Translation in the Wild via Category-Independent Conditional Maps](#). In Proceedings of ACM International Conference on Multimedia, 2019. **ACM MM 2019**
9. **Yahui Liu**, Victoria Bi, Jun Gao, Xiaojiang Liu, Jian Yao, and Shuming Shi. [Towards Less Generic Responses in Neural Conversation Models: A Statistical Re-weighting Method](#). In Proceedings of the Conference on Empirical Methods in Natural Language Processing, 2018. **EMNLP 2018**
10. Xiaohu Lu, Jian Yao, Haoang Li, **Yahui Liu**. [2-Line Exhaustive Searching for Real-Time Vanishing Point Estimation in Manhattan World](#). In Proceedings of IEEE Winter Conference on Applications of Computer Vision, 2017. **WACV 2017**

**Journal papers**

11. **Yahui Liu**, Yajing Chen, Linchao Bao, Nicu Sebe, Bruno Lepri, Marco De Nadai. [ISF-GAN: An Implicit Style Function for High-Resolution Image-to-Image Translation](#). IEEE Transactions on Multimedia (TMM) (IF: 6.513), 2022.

12. Lei Ding, Hao Tang, **Yahui Liu**, Yilei Shi, Xiao Xiang Zhu, Lorenzo Bruzzone. [Adversarial Shape Learning for Building Extraction in VHR Remote Sensing Images](#). *IEEE Transactions on Image Processing (TIP)* (IF: 10.86), 2021.
13. Jing Han, Jian Yao, Jiao Zhao, Jingmin Tu, and **Yahui Liu**. [Multi-Oriented and Scale-Invariant License Plate Detection Based on Convolutional Neural Networks](#). *Sensors* (IF 3.576), 2019.
14. **Yahui Liu**, Jian Yao, Rengping Xie, and Li Li. [DeepCrack: A Deep Hierarchical Feature Learning Architecture for Crack Segmentation](#). *Neurocomputing* (IF 5.719), 2019.
15. **Yahui Liu**, Jian Yao, Xiaohu Lu, Menghan Xia, Xingbo Wang, and Yuan Liu. [RoadNet: Learning to Comprehensively Analyze Road Networks in Complex Urban Scenes from High-Resolution Remotely Sensed Images](#). *IEEE Transactions on Geoscience and Remote Sensing (TGRS)* (IF: 5.63), 2019.
16. Renping Xie, Jian Yao, Kang Liu, Xiaohu Lu, **Yahui Liu**, Menghan Xia, and Qifei Zeng. [Automatic Multi-image Stitching for Concrete Bridge Inspection by Combining Point and Line Features](#). *Automation in Construction* (IF: 7.700), 2018.
17. Li Li, Jian Yao, **Yahui Liu**, Wei Yuan, Shuzhu Shi, and Shenggu Yuan. [Optimal Seamline Detection for Orthoimage Mosaicking by Combining Deep Convolutional Neural Network and Graph Cuts](#). *Remote Sensing* (IF: 4.848), 2017.

## Preprints

18. **Yahui Liu**, Bin Ren, Yue Song, Wei Bi, Nicu Sebe and Wei Wang. [Breaking the Chain of Gradient Leakage in Vision Transformers](#), arXiv:2205.12551, 2022.
19. Yixuan Su, Tian Lan, **Yahui Liu**, Fangyu Liu, Dani Yogatama, Yan Wang, Lingpeng Kong and Nigel Collier. [Language Models Can See: Plugging Visual Controls in Text Generation](#), arXiv:2205.02655, 2022.
20. **Yahui Liu**, Marco De Nadai, Jian Yao, Nicu Sebe, Bruno Lepri, Xavier Alameda-Pineda. [GMM-UNIT: Unsupervised Multi-Domain and Multi-Modal Image-to-Image Translation via Attribute Gaussian Mixture Modeling](#), arXiv:2003.06788, 2020.

## AWARDS & HONORS

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- Top Minds (天才少年) offer from Huawei, China, 2022
- Technical Expert (技术大咖) offer from Tencent AI Lab, China, 2021
- Scholarship of the University of Trento, Italy, 2018
- Excellent Graduate Freshman Scholarship of Wuhan University, China, 2015
- Outstanding Undergraduate Thesis, Hubei Province, China, 2015 (top 3%)
- Excellent Undergraduate Students, Wuhan University, China, 2012-2014

## SKILLS

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- C/C++, Python, L<sup>A</sup>T<sub>E</sub>X, Matlab
- PyTorch, TensorFlow
- English, Mandarin