YANG Siyuan

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RESEARCH INTEREST

- Human Activity Understanding, Motion Representation Learning, and 3D Human Motion Generation.

EDUCATION

Nanyang Technological University, Singapore — 08/2018 – 04/2024
Ph.D., Interdisciplinary Graduate Programme, ROSE Lab
Supervisors: Prof. Alex C. Kot (IEEE Fellow, IES Fellow); Assoc. Prof. Shijian Lu

Nanyang Technological University, Singapore — 08/2017 – 07/2018
MSc in Computer Control & Automation

Harbin Institute of Technology, Harbin, China — 08/2012 – 07/2016
B.E. in Automation

RESEARCH EXPERIENCE

Wallenberg-NTU Presidential Postdoctoral Fellowship, NTU & KTH — 11/2024 – Present
Supervisors: Prof. Weisi Lin (NTU; IEEE Fellow, IES Fellow); Prof. Hedvig Kjellström (KTH)

- Collect a comprehensive dataset for enhanced 3D human motion understanding.
- Develop methods for fine-grained and cross-domain 3D human motion understanding.
- Design unified LLM-based frameworks for 3D human motion understanding.
- Led the development of the software research plan for the successful NTU–HMGICS proposal "Manual Assembly Job Quality Inspection", defining the technical approach, work packages, and evaluation plan.

Research Fellow, School of EEE, NTU & ROSE Lab — 05/2024 – 11/2024

Research Associate, School of EEE, NTU & ROSE Lab — 01/2023 – 04/2024

- Developed simulated drone datasets to mimic the real-world flying drone cameras.
- Created the Auto Image Rotation algorithm for automatic realignment of images.
- Designed the Person Re-Identification framework for the low-resolution person images.

Graduate Research Assistant, School of EEE, NTU & S.E.A. Aquarium, RWS — 05/2022 – 05/2023

- Constructed a fish classification and counting dataset at S.E.A. Aquarium, RWS.
- Developed a deep learning model for detailed fish species classification and quantity estimation.

TEACHING AND MENTORING EXPERIENCE

Guest Lecturer, KTH Royal Institute of Technology — 10/2026 – 11/2026

- DT2140: Multimodal Interaction and Interfaces. Deliver a guest lecture on gesture-based interfaces and supervise several group projects.

Laboratory Instructor, School of EEE, NTU — 09/2025 – 11/2025

- IE2110: Signals and Systems.

Teaching Assistant, School of EEE, NTU — Fall 2020, Spring 2021, Fall 2021

- Served as teaching assistant for three undergraduate courses: C Programming (EE1005), Signals & Systems (IE2110 & EE2010), and Artificial Intelligence and Data Mining (EE4483).

Thesis Supervisor, NTU & KTH — 07/2019 – Present

- Mentored 8 Master of Science students and 11 Final Year Project students.

PUBLICATIONS

Selected Publications

- **Siyuan Yang**, Jun Liu, Shijian Lu, Meng Hwa Er, Alex C. Kot. One-Shot Action Recognition via Multi-Scale Spatial-Temporal Skeleton Matching. *IEEE T-PAMI*, 2024.
- **Siyuan Yang**, Jun Liu, Shijian Lu, Meng Hwa Er, Yongjian Hu, Alex C. Kot. Self-Supervised 3D Action Representation Learning with Skeleton Cloud Colorization. *IEEE T-PAMI*, 2023.
- **Siyuan Yang**, Jun Liu, Shijian Lu, Meng Hwa Er, Alex C. Kot. Skeleton Cloud Colorization for Unsupervised 3D Action Representation Learning. *ICCV*, 2021.
- **Siyuan Yang**, Jun Liu, Shijian Lu, Meng Hwa Er, Alex C. Kot. Collaborative Learning of Gesture Recognition and 3D Hand Pose Estimation with Multi-Order Feature Analysis. *ECCV*, 2020 (**Spotlight**).
- Chenyu Yi*, **Siyuan Yang***, Haoliang Li, Yap-Peng Tan, Alex C. Kot. Benchmarking the Robustness of Spatial-Temporal Models Against Corruptions. *NeurIPS Datasets and Benchmarks Track*, 2021.
- Qichen Zheng, Yi Yu, **Siyuan Yang#**, Jun Liu, Kwok-Yan Lam, Alex C. Kot. Towards Physical World Backdoor Attacks against Skeleton Action Recognition. *ECCV*, 2024.
- Yi Yu*, Qichen Zheng*, **Siyuan Yang#**, Wenhan Yang, Jun Liu, Shijian Lu, Yap-Peng Tan, Kwok-Yan Lam, Alex C. Kot. Unlearnable Examples Detection via Iterative Filtering. *ICANN*, 2024 (**Oral**).

Other Publications

- Ling Li, Lanqing Guo, **Siyuan Yang**, Yufei Wang, Qian Zheng, Alex C. Kot, Weisi Lin, Lihui Chen. FaceComposer: Learning Coherent and Realistic Face Composition from References. *IJCNN*, 2026 (**Oral**).
- Wenxuan Liu, Zhuo Zhou, Xuemei Jia, **Siyuan Yang**, Wenxin Huang, Xian Zhong, Chia-Wen Lin. Beyond the Horizon: Decoupling Multi-View UAV Action Recognition via Partial Order Transfer. *AAAI*, 2026.
- Ruohan Meng, **Siyuan Yang**, Zhili Zhou, Qi Cui, Kwok-Yan Lam, Zengwei Zheng, Alex C. Kot. Proactive Image Manipulation Detection and Tracing in Fake News. *IEEE Trans. Dependable and Secure Computing*, 2026.

- Chong Wang, Zixuan Fu, Hao Cheng, **Siyuan Yang**, Alex Kot, Bihan Wen. Taming Noise Initialization for Zero-shot Video Restoration with Image Diffusion Priors. *IEEE Trans. Multimedia*, 2026.
- Hao Liu, Pengyu Guo, **Siyuan Yang**, Zeqing Jiang, Qinglei Hu, Dongyu Li. SpaceSeg: A High-Precision Intelligent Perception Segmentation Method for Multi-Spacecraft On-Orbit Targets. *IEEE Trans. Image Processing*, 2026.
- Ling Li, Lanqing Guo, **Siyuan Yang**, Qian Zheng, Yakun Ju, Weisi Lin, Alex C. Kot. HRHuman: Tuning-Free Higher-Resolution Human Image Generation via Template Knowledge. *IEEE ISCAS*, 2025 (**Oral**).
- Linhao Li, Yongzhang Tan, **Siyuan Yang**, Hao Cheng, Yongfeng Dong, Liang Yang. Adaptive Decision Boundary Strategy for Few-Shot Class-Incremental Learning: Mitigating Feature Space Conflicts. *AAAI*, 2025.
- Chong Wang, Lanqing Guo, Zixuan Fu, **Siyuan Yang**, Hao Cheng, Alex C. Kot, Bihan Wen. Reconciling Stochastic and Deterministic Strategies for Zero-shot Image Restoration using Diffusion Model in Dual. *CVPR*, 2025.
- Yi Yu, Song Xia, **Siyuan Yang**, Chenqi Kong, Wenhan Yang, Shijian Lu, Yap-Peng Tan, Alex Kot. MTL-UE: Learning to Learn Nothing for Multi-Task Learning. *ICML*, 2025.
- Peijun Bao, Chenqi Kong, **Siyuan Yang**, Zihao Shao, Xinghao Jiang, Boon Poh Ng, Meng Hwa Er, Alex Kot. Vid-Group: Temporal Video Grounding Pretraining from Unlabeled Videos in the Wild. *ICCV*, 2025.
- Hang Guo, Qing Zhang, Zixuan Gao, **Siyuan Yang**, Shulin Peng, Xiang Tao, Ting Yu, Yan Wang, Qingli Li. Efficient Multi-Slide Visual-Language Feature Fusion for Placental Disease Classification. *ACM Multimedia*, 2025.
- Siqi Liang, Wenxuan Liu, Zhe Li, Kui Jiang, **Siyuan Yang**, Chia-Wen Lin, Xian Zhong. AM40 Dataset: A Benchmark for Enhancing Action Recognition with Matting-Driven Interaction Analysis. *Pattern Recognition*, 2025.
- Hao Cheng, **Siyuan Yang**, Chong Wang, Joey Tianyi Zhou, Alex C. Kot, Bihan Wen. STSP: Spatial-Temporal Subspace Projection for Video Class-incremental Learning. *ECCV*, 2024.
- Mingqi Lu, **Siyuan Yang**, Xiaobo Lu, Jun Liu. Cross-Modal Contrastive Pre-training for Few-Shot Skeleton Action Recognition. *IEEE Trans. Circuits and Systems for Video Technology*, 2024.
- Yang Yu, Rongrong Ni, **Siyuan Yang**, Yu Ni, Yao Zhao, Alex C. Kot. Mining Generalized Dynamic Inconsistency for Detecting Face Forgery Videos. *International Journal of Computer Vision*, 2024.
- Ruohan Meng, Chenyu Yi, Yi Yu, **Siyuan Yang**, Bingquan Shen, Alex C. Kot. Towards Robust Unlearnable Examples via Deep Hiding. *IEEE Trans. Information Forensics and Security*, 2024.
- Chenyu Yi, **Siyuan Yang**, Yufei Wang, Haoliang Li, Yap-Peng Tan, Alex C. Kot. Temporal Coherent Test Time Optimization for Robust Video Classification. *ICLR*, 2023.
- Hao Cheng, **Siyuan Yang**, Joey Tianyi Zhou, Lanqing Guo, Bihan Wen. Frequency Guidance Matters in Few-Shot Learning. *ICCV*, 2023 (**Oral**).
- Jianhong Pan, **Siyuan Yang**, Lin Geng Foo, Qiuhong Ke, Hossein Rahmani, Zhipeng Fan, Jun Liu. Progressive Channel-Shrinking Network. *IEEE Trans. Multimedia*, 2023.
- Yang Yu, Rongrong Ni, **Siyuan Yang**, Yao Zhao, Alex C. Kot. Narrowing Domain Gaps with Bridging Samples for Generalized Face Forgery Detection. *IEEE Trans. Multimedia*, 2023.
- Yang Yu, Xiaohui Zhao, Rongrong Ni, **Siyuan Yang**, Yao Zhao, Alex C. Kot. Augmented Multi-scale Spatiotemporal Inconsistency Magnifier for Generalized DeepFake Detection. *IEEE Trans. Multimedia*, 2023.
- Yang Yu, Rongrong Ni, Yao Zhao, **Siyuan Yang**, Fen Xia, Ning Jiang, Guoqing Zhao. MSTV: Multiple Spatiotemporal Views Transformer for DeepFake Video Detection. *IEEE Trans. Circuits and Systems for Video Technology*, 2023.
- Yang Yu, Xiaolong Liu, Rongrong Ni, **Siyuan Yang**, Yao Zhao, Alex C. Kot. PVASS-MDD: Predictive Visual-audio Alignment Self-supervision for Multimodal Deepfake Detection. *IEEE Trans. Circuits and Systems for Video Technology*, 2023.

Manuscripts Under Review

- **Siyuan Yang***, Chong Wang*, Hao Cheng, Jun Liu, Bihan Wen, Alex Kot, Hedvig Kjellström. Image Diffusion Models Are Good 3D Human Motion Generators. Submitted to *ICLR 2027*. arXiv:2610.14254.
- **Siyuan Yang**, Jun Liu, Hao Cheng, Chong Wang, Shijian Lu, Hedvig Kjellström, Weisi Lin, Alex Kot. Skeleton-to-Image Encoding: Enabling Skeleton Representation Learning via Vision-Pretrained Models. Under review, *IJCV*. arXiv:2603.05963.
- Qichen Zheng, **Siyuan Yang#**, Chong Wang, Jun Liu, Shijian Lu, Alex Kot, Kwok-Yan Lam. TAME: Topology-Aware Text-Driven Motion Editing across Heterogeneous Humanoid Skeletons. Submitted to *ICLR 2027*. arXiv:2610.04529.
- Yichuan Cheng, **Siyuan Yang#**, Kecheng Chen, Shanghang Zhang, Renjie Wan, Haoliang Li#. Efficient Source-Free Domain Adaptation for Time Series Data on Transformer. Under review, *IEEE Trans. Knowledge and Data Engineering*.
- Chong Wang, Zixuan Fu, Shiqi Huang, **Siyuan Yang**, Hao Cheng, Bihan Wen. Persistence Forcing: Exploiting Feature Specialization in Pixel-Space Diffusion. Submitted to *ICLR 2027*. arXiv:2609.36014.
- Chong Wang, Jiarui Zhang, **Siyuan Yang**, Hao Cheng, Bihan Wen. Beyond Camera Views: Lifting Vision Foundation Features into Multimodal LiDAR-Camera Neural Fields. Submitted to *AAAI 2027*.
- Yujie Jiang, Qing Zhang, Yingjiao Deng, **Siyuan Yang**, Chunhua Zhou, Lili Gao, Yan Wang, Qingli Li. Text-Guided Defocus Knowledge Distillation for Multi-Focus Image Fusion with Cross-Modal Alignment. Under major revision, *Pattern Recognition*.

(equal contribution, # corresponding author)*

PROFESSIONAL SERVICE

- **Area Chair:** BMVC 2026, VCIP 2026, ICLR 2027, ICML 2027
- **Tutorial Co-organizer:** ECCV 2026, From Perception to Simulation: The Emergence of World Models in Multi-modal Reasoning
- **Tutorial Speaker:** ICPR 2026, Advancing Comprehensive Reasoning in Multimodal Large Language Models
- **Registration Chair:** BMVC 2026
- **Journal Reviewer:** IEEE Trans. on Pattern Analysis and Machine Intelligence, IEEE Trans. on Image Processing, IEEE Trans. on Multimedia, IEEE Trans. on Industrial Informatics, IEEE Trans. on Circuits and Systems for Video Technology, IEEE Trans. on Neural Networks and Learning Systems, International Journal of Computer Vision, Pattern Recognition, etc.
- **Conference Reviewer:** CVPR, ICCV, ECCV, NeurIPS, ICML, ICLR, AAAI, ACMMM, WACV, ICME, ICASSP, NeurIPS Datasets and Benchmarks Track, etc.

AWARDS

- **Wallenberg-NTU Presidential Postdoctoral Fellowship**, 2024
- **Singapore Data Science Consortium (SDSC) Dissertation Research Fellowship**, 2021