Xingyu SONG

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Homepage Google Scholar
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Education and Employment

2024.05 – Present **Research Assistant / Researcher, The University of Tokyo**
Graduate School of Engineering / Information Technology Center

2022.04 – 2024.03 **M.Eng., The University of Tokyo**
Graduate School of Engineering

2021.10 – 2022.03 **Research Student, Waseda University**
School of Fundamental Science and Engineering

2017.09 – 2021.07 **B.Sc., Chongqing University**
College of Computer Science

Publication and Manuscript

Peer-reviewed Conference

1. **Xingyu Song**, Z. Li, S. Chen, X.-Q. Cai, and K. Demachi, *An animation-based augmentation approach for action recognition from discontinuous video*, In: Proceedings of the 27th European Conference on Artificial Intelligence (ECAI'24), Santiago de Compostela, Spain, Oct. 19-24, 2024 (Oral).
2. **Xingyu Song**, Z. Li, S. Chen, and K. Demachi, *Quater-gcn: Enhancing 3d human pose estimation with orientation and semi-supervised training*, In: Proceedings of the 27th European Conference on Artificial Intelligence (ECAI'24), Santiago de Compostela, Spain, Oct. 19-24, 2024 (Oral).
3. **Xingyu Song**, Z. Li, S. Chen, and K. Demachi, *Game engine based data augmentation with in-game customization and modeling for malicious behaviors identification in nuclear security*, In: Proceedings of the INMM/ESARDA 2023 Joint Annual Meeting, Vienna, Austria, May 22-26, 2023 (Oral).
4. Z. Li, **Xingyu Song**, S. Chen, and K. Demachi, *Malicious behaviors identification in nuclear security based on visual relationships extraction and knowledge reasoning*, In: Proceedings of the INMM/ESARDA 2023 Joint Annual Meeting, Vienna, Austria, May 22-26, 2023 (Oral).

Journal Article

1. L. Zhan, **Xingyu, Song**, C. Shi, and D. Kazuyuki, "Data, language and graph-based reasoning methods for identification of human malicious behaviors in nuclear security," *Expert Systems with Applications*, vol. 236, p. 121 367, 2024.
2. L. Zhan, **Xingyu, Song**, C. Shi, and D. Kazuyuki, "Armed boundary sabotage: A case study of human malicious behaviors identification with computer vision and explainable reasoning methods," *Computers and Electrical Engineering*, vol. 121, p. 109 924, 2025, ISSN: 0045-7906.
3. L. Zhan, **Xingyu, Song**, C. Shi, and D. Kazuyuki, "Abnormal detection in nuclear security videos based on label-specific autoencoders and reconstruction errors comparison," *Nuclear Engineering and Technology*, p. 103 239, 2024, ISSN: 1738-5733.

Preprint

1. **Xingyu Song**, Z. Li, S. Chen, and K. Demachi, *Gtautoact: An automatic datasets generation framework based on game engine redevelopment for action recognition*, 2024.

2 L. Zhan, **Xingyu, Song**, C. Shi, and D. Kazuyuki, *Advancement and development of graph-based reasoning method for human malicious behaviors identification based on graph contrastive representation learning*, 2024. .

Presentation

1 **Xingyu Song**, Z. Li, S. Chen, and K. Demachi, *Real-time Malicious Behaviors Identification for Nuclear Facilities using Vision-based Object Detection and Pose Estimation*. INMMJ 43rd Annual Meeting, 2022.

2 **Xingyu Song**, Z. Li, S. Chen, and K. Demachi, *Game Engine Based Data Augmentation for Malicious Behaviors Identification in Nuclear Security*. 2023 Annual Meeting of AESJ, 2023.

Award and Achievement

2024 **SPRING GX Fellowship**, The University of Tokyo

Internship

2020.06 – 2020.08 **Sichuan Hwadee Information Technology Co., Ltd, Chengdu, China**
Development of the big data information integration analysis platform

2019.01 – 2019.03 **National key laboratory of Software Development Environment, Beihang University, Beijing, China**
Data standard modeling and environment verification
Supervised by Prof. Zhiming Zheng

2018.07 – 2018.09 **ChinaSoft International, Chongqing, China**
Development of the campus forum CQUHub

On-going Project

Graph + CV
Topic: Graph Embedding in Computer Vision
Cooperator: Dr. Xin-Qiang Cai (RIKEN AIP / Sugiyama Lab, UTokyo), Boming Yang (Matsuo Lab, UTokyo)
Targeting: ICCV2025

LLM + GNN
Topic: External Knowledge Understanding by Graph Representation for LLM
Cooperator: Dr. Irene Li (Information Technology Center, Utokyo), Yunjie He (Analytical Computing Department, the University of Stuttgart / Bosch Center for Artificial Intelligence), Zixuan He (Demachi Lab, Utokyo)
Targeting: Neurips2025

Robotics + HCI
Topic: Human Motion Reconstruction Integrating Deep Learning with Wearable Equipment
Cooperator: Fan Yang (IMPE Lab, UTokyo)
Targeting: ICRA2026/CHI2026