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Guoyang Xie

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SHORT BIO

I am Guoyang Xie, and I will achieve my machine learning PhD degree at the University of Surrey on October 16th, 2023. My research topic is **Deep Learning-based Image Anomaly Detection in Industrial Manufacturing and Medical Imaging.** I have 13 papers published in top conferences and journals, including NeurIPS, ICLR, ACM MM, ACM Computing, and TCYB. Prior to that, I worked at the GAC Research Institute and Baidu, developing algorithms for autonomous driving perception.

EDUCATION

1. University of Surrey, Machine Learning PhD, 2019.10-2023.10, Supervisor: Yaochu Jin (IEEE Fellow, Humboldt Professor for AI, a Member of Academia Europaea)

2. Hong Kong University of Science and Technology, MPhil(Major:Robotics), 2013.09-2015.09, Supervisor: Ming Liu

3. University of Electronic Science and Technology of China, Bachelor(Electronic Engineering), 2009.9-2013.06

PUBLICATION (*: CONTRIBUTED EQUALLY)

1. **Guoyang Xie***, Jinbao Wang*, Jiaqi Liu*, Yaochu Jin and Feng Zheng, “Pushing the Limits of Few Shot Anomaly Detection in Industry Vision: Graphcore”, (ICLR 2023)

2. Jiaqi Liu*, **Guoyang Xie***, Ruitao Chen*, Xinpeng Li, Jinbao Wang, Yong Liu, and Feng Zheng , “Real3D-AD: A Dataset of Point Cloud Anomaly Detection”, (NeurIPS Dataset and Benchmark Track 2023)

3. Ruitao Chen*, **Guoyang Xie***, Jiaqi Liu*, Jinbao Wang, Ziqi Luo, Jinfan Wang and Feng Zheng, “EasyNet: An Easy Network for 3D Industrial Anomaly Detection”, (ACM MM 2023)

4. **Guoyang Xie***, Jinbao Wang*, Jiaqi Liu*, Jiayi Lyu, Yong Liu, Chengjie Wang, Feng Zheng, and Yaochu Jin, “IM-IAD: Industrial Image Anomaly Detection Benchmark in Manufacturing”, (TCYB, IF: 19.217, Minor Revision)

5. L.Zhang, S.Zhang, **Guoyang Xie**, Jiaqi Liu, Hua Yan, Jinbao Wang, and Feng Zheng, “What makes a good data augmentation for few-shot unsupervised image anomaly detection”, (CVPR Workshop 2023)

6. Jinbao Wang*, **Guoyang Xie***, Yawen Huang*, Yefeng Zheng, Yaochu Jin and Feng Zheng, “FedMed-ATL: Misaligned Unpaired Cross-Modality Neuroimage Synthesis via Transform Loss”, (ACM MM 2023)

7. **Guoyang Xie**, Tao Xu, Carsten Isert, Michael Aeberhard, Shaohua Li and M.Liu, "Online Active Calibration for a Multi-LRF System", (ITSC 2015)

8. **Guoyang Xie*,** Yawen Huang*, Jinbao Wang, Jiayi Lyu, Feng Zheng, Yefeng Zheng, and Yaochu Jin, "Cross-Modality Neuroimage Synthesis: A Survey", (ACM Computing Surveys 2023, IF: 14.324)

9. **Guoyang Xie***, Jinbao Wang, Guo Yu, Feng Zheng and Yaochu Jin, "Tiny Adversarial Multi-Objective One-Shot Neural Architecture Search", (CAIS, IF: 6.72)

10. Jinbao Wang*, **Guoyang Xie***, Yawen Huang*, Jiayi Lyu, Feng Zheng, Yefeng Zheng and Yaochu Jin, "FedMed-GAN: Federated Domain Translation on Unsupervised Cross-Modality Brain Image Synthesis", (NeuroComputing, IF: 5.719)

11. Jiaqi Liu*, **Guoyang Xie***, Jinbao Wang*, Shangnian Li, Chengjie Wang, Feng Zheng, and Yaochu Jin, "Deep Industrial Image Anomaly Detection: A Survey", (Machine Learning Research, 2023)

12. Jinbao Wang*, **Guoyang Xie***, Yawen Huang*, Jiayi Lyu, Feng Zheng, Yefeng Zheng, and Yaochu Jin, "K-CROSS: K-Space Aware Cross-Modality Score for Synthesized Neuroimage Quality Assessment, (Submitted to JBHI)

13. **Guoyang Xie***, Jiaqi Liu*, Jinbao Wang, Yaochu Jin, and Feng Zheng, "Transfer-AD: Transferable Image Anomaly Detection in Changeover Procedure", (Submitted to AAAI 2023)

14. Jiang Xi*, **Guoyang Xie***, Jinbao Wang*, Yong Liu, Chengjie Wang, Feng Zheng, Yaochu Jin, "A Survey of Visual Sensory Anomaly", arXiv preprint arXiv:2202.07006

WORK EXPERIENCE

PRINCIPLE PERCEPTION ALGORITHM ENGINEER – 2017.12-2019.9

1. Build a comprehensive perception benchmark for L3 and L4 Level Autonomous Driving, including:

- Highway lane detection benchmark
- Free-space semantic segmentation benchmark
- Highway object-detection benchmark

2. Intelligent Parking-Assist Algorithm, including:

- Visual simultaneous localization and mapping algorithm
- Visual object detection algorithm

3. Build a large-scale dataset for L3/L4 autonomous driving tasks, including:

- Highway semantic segmentation
- Real-time object detection

SENIOR PERCEPTION ALGORITHM ENGINEER – 2015.11-2017.11

1. Deep Learning-based 3D object detection

- Random forest tree-based 3D object classification
- End-to-end 3D point cloud object detection, classification and tracking

SERVICE

- 2020-2023, CAIS Reviewer
- 2022, AAAI Reviewer
- 2023, NeurIPS Reviewer
- 2023, TEVC Reviewer
- 2023, ACM MM Reviewer
- 2023, ICLR Reviewer
- 2023, TETCI Reviewer
- 2023, TNNLS Reviewer

SKILLS

Programming Language: Python, Latex, Matlab

Language: Cantonese, Mandarin, English

GITHUB REPOS(代码库)

- Open-IAD: https://github.com/M-3LAB/open-iad
- FedMed-GAN: https://github.com/M-3LAB/FedMed-GAN
- Awesome Industrial Image Anomaly Detection: https://github.com/M-3LAB/awesome-industrial-anomaly-detection
- Brain-GAN Survey: https://github.com/M-3LAB/awesome-multimodal-brain-image-systhesis