Guoyang **Xie**

Machine Learning PhD · University of Surrey

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https://scholar.google.com/citations?user=Xd95xOcAAAAJ&hl=en

"Be the change that you want to see in the world."

Summary

I'm Guoyang Xie, and I completed my PhD studies at the University of Surrey's NICE group at the end of September. Yaochu Jin, a member of the European Academy of Sciences, an IEEE Fellow, the president of the IEEE Computational Intelligence Community, and a Humboldt Professor of Artificial Intelligence at Bielefeld University, is my supervisor. My PhD study focuses on the use of artificial intelligence in industrial production or manufacture, including energy, communication, manufacturing, finance, etc. My subject is Deep Learning-based Automatic Industrial Image Anomaly Detection. I now publish in 12 prestigious conferences and publications, including NeurIPS, ICLR, ACM MM, TCYB, ACM Computing. Prior to obtaining my Ph.D., I worked at the GAC Research Institute and Baidu, where I developed algorithms for autonomous driving perception

Experience

GAC Automotive R&D Center — *Guangzhou, China*

Principle Perception Algorithm Engineer — *2017.12 – 2019.9*

- Technical Management Perception Team and Vendors Negotiation, including L3 and L4 autonomous driving projects.

Autonomous Driving Unit, Baidu Inc — *Beijing, China*

Algorithm Engineer — *2015.11 – 2017.11*

- 3D Obstacle Object Recognition and Classification.

Education

University of Surrey — *Guildford, United Kingdom*

Ph.D.in Machine Learning — *2019.10 - 2023.9*

- Thesis title: *Few-Shot Industrial Image Anomaly Detection in Changeover Procedure*
- Supervisor: Professor Yaochu Jin

Hong Kong University of Science and Technology (HKUST) — *Hong Kong SAR, China*

MPhil. in Robotics — *2013.9 - 2015.7*

- Thesis title: *Automatic External Calibration for Lidar and Camera in Autonomous Driving*
- Supervisor: Professor Ming Liu

University of Electronic Science and Technology of China (UESTC) — *Chengdu, China*

BEng. in Physical Electronics — *2009.9 - 2013.7*

Publications

Note that * contributed equally.

Conference

1. **Guoyang, Xie***, Jingbao Wang*, Jiaqi Liu*, Feng Zheng, and Yaochu Jin. "Pushing the limits of fewshot anomaly detection in industry vision: Graphcore." The Eleventh International Conference on Learning Representations (ICLR). 2023.
2. Jinbao Wang*, **Guoyang Xie***, Yawen Huang*, Yefeng Zheng, Yaochu Jin, and Feng Zheng. "FedMed-ATL: Misaligned Unpaired Cross-Modality Neuroimage Synthesis via Affine Transform Loss." In Proceedings of the 30th ACM International Conference on Multimedia (ACM MM), pp. 1522-1531. 2022.
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. Zhang, Lingrui*, Shuheng Zhang*, **Guoyang Xie**, Jiaqi Liu, Hua Yan, Jinbao Wang, Feng Zheng, and Yaochu Jin. "What makes a good data augmentation for few-shot unsupervised image anomaly detection?" In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR Vision Workshop), pp. 4344-4353. 2023.
5. **Guoyang Xie**, Tao Xu, Carsten Isert, Michael Aeberhard, Shaohua Li, and Ming Liu. "Online active calibration for a multi-lrf system." In 2015 IEEE 18th International Conference on Intelligent Transportation Systems(ITSC), pp. 806-811. IEEE, 2015.
6. **Guoyang Xie***, Jiaqi Liu*, Jinbao Wang, Yaochu Jin, and Feng Zheng. "Transfer-AD: Transferable Image Anomaly Detection in Changeover Procedure." Submitted to NeurIPS, 2023.
7. Jiaqi Liu*, **Guoyang Xie***, Ruitao Chen*, Xinpeng Li, Jinbao Wang, Yong Liu, Chengjie Wang and Feng Zheng. "Real3D-AD: A Dataset of Point Cloud Anomaly Detection." Submitted to NeurIPS Dataset and Benchmark Track, 2023.

Journal

1. **Guoyang Xie***, Jinbao Wang*, Yawen Huang*, Jiayi Lyu, Feng Zheng, Yefeng Zheng, and Yaochu Jin. "Cross-Modality Neuroimage Synthesis: A Survey." ACM Computing Surveys (Minor Revision). 2023.
2. **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." IEEE Transactions on Cybernetics (IEEE TCYB) (Major Revision). 2023.
3. Liu, Jiaqi*, **Guoyang Xie***, Jinbao Wang*, Shangnian Li, Chengjie Wang, Feng Zheng, and Yaochu Jin. "Deep Industrial Image Anomaly Detection: A Survey." Machine Intelligence Research (MIR). 2023.
4. **Guoyang Xie***, Jinbao Wang*, Guo Yu, Feng Zheng, and Yaochu Jin. "Tiny adversarial mulit-objective oneshot neural architecture search." Complex & Intelligent Systems (CAIS) 6 (2023): 107-109.
5. 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 546 (2023): 126282.
6. **Guoyang Xie***, Jinbao Wang*, Yawen Huang*, Jiayi Lyu, Feng Zheng, Yefeng Zheng, and Yaochu Jin. "K-CROSS: K-Space-Aware Cross-Modality Score for Synthesized Neuroimage Quality Assessment." IEEE Journal of Biomedical and Health Informatics (IEEE JBHI) (Under Review). 2023.
7. Jiang, Xi*, **Guoyang Xie***, Jinbao Wang*, Yong Liu, Chengjie Wang, Feng Zheng, and Yaochu Jin. "A survey of visual sensory anomaly detection." arXiv preprint arXiv:2202.07006 (2022).

Skills

Programming Python, Matlab, C++, HTML5, LaTeX

Service

2020-2023, **Complex & Intelligent Systems,** Reviewer

2022 **AAAI,** Reviewer

2023 **NeurIPS,** Reviewer

2023 **ACM MM,** Reviewer

2023 **TEVC,** Reviewer

2023 **TETCI,** Reviewer

Github

Open-IAD

Founder & Contributor

- https://github.com/M-3LAB/open-iad

Fedmed-GAN

Founder & Contributor

- https://github.com/M-3LAB/FedMed-GAN

Awesome Industrial Anomaly Detection

Founder & Contributor

- https://github.com/M-3LAB/awesome-industrial-anomaly-detection

Awesome Multi-Modal Brain Image Synthesis

Founder & Contributor

- https://github.com/M-3LAB/awesome-multimodal-brain-image-systhesis