



# Guoyang Xie

MACHINE LEARNING PHD · UNIVERSITY OF SURREY

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<https://scholar.google.com/citations?user=Xd95x0cAAAAJ&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 (3 CCF-A, 1 CCF-B, 4 JCR1 and 2 中科院1区). 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)

Chengdu, 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. 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.
4. **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.
5. Ruitao Chen\*, **Guoyang, Xie\***, Jiaqi Liu\*, Jinbao Wang, Ziqi Luo, Jinfan Wang, and Feng Zheng. "EasyNet: An Easy Network for 3D Industrial Anomaly Detection." Submitted to ACM MM, 2023.
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 (Major 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 multi-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

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

## Service

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

2022 **AAAI**, Reviewer

2023 **NeurIPS**, Reviewer

2023 **ACM MM**, Reviewer

2023 **TEVC**, Reviewer

2023 **TETCI**, Reviewer

## **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-synthesis>