

Chaowei Fang

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Google Scholar: <https://scholar.google.com/citations?user=eNtYEmcAAAAJ&hl=en>

Address: 266 Xinglong Section of Xifeng Road, Xi'an, Shaanxi 710126, China

CURRENT POSITION

- Associate Professor, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, School of Artificial Intelligence, Xidian University, Xi'an, China

RESEARCH FIELDS AND INTERESTS

- Visual information processing, representation, and understanding.

EDUCATION

- **The University of Hong Kong** Hong Kong
Ph.D. - Computer Science; Advisor: Prof. Yizhou Yu 09/2015 - 12/2019
Thesis: Nonlocal feature learning for image segmentation, facial video hallucination, and volumetric segmentation
- **Xi'an Jiaotong University** Xi'an, China
Postgraduate Student - Pattern Recognition and Intelligent System; Advisor: Prof. Jianru Xue 09/2013 - 06/2015
B.Eng. - Automation 09/2009 - 07/2013

SPONSORED RESEARCH PROJECTS

- **国家自然科学基金面上基金**: 磁共振图像空间分辨率增强的知识表达与模型泛化, 2024-2027.
- **xxxx企业**: 视频水印自动识别与关键技术研究, 2022-.
- **国际化种子基金**: 面向智能图像处理与理解的海外学术合作与交流, 2022-2023.
- **华为智能基座课程建设项目**: 深度学习课程建设研究, 2022.
- **国家自然科学基金青年基金**: 面向三维医学图像的语义分割及其域自适应算法研究, 2021-2023.
- **基本科研业务费**: 三维医学图像分割的领域自适应算法研究, 2021-2022.
- **中科川森**: 基于深度学习的表面划痕检测算法, 2020.

PEER-REVIEWED JOURNAL ARTICLES

* indicates equal contribution, and † indicates corresponding author.

1. Cheng, D., Tai, H., Wang, N., **Fang, C.**, and Gao, X., 2024. Neighbor Consistency and Global-Local Interaction: A Novel Pseudo-label Refinement Approach for Unsupervised Person Re-Identification. *IEEE Transactions on Information Forensics & Security*.
2. Li, G., Chen, Z., Mao, M., Lin, L., and **Fang, C.**, 2024. Uncertainty-aware Active Domain Adaptive Salient Object Detection. *IEEE Transactions on Image Processing*.
3. Yang, K., Han, J., Guo, G., **Fang, C.**, Fan Y., Cheng, L., and Zhang D., 2024. Progressive Adapting and Pruning: Domain-Incremental Learning for Saliency Prediction. *ACM Transactions on Multimedia Computing, Communications, and Applications*.
4. Chen, D., Chen, J., **Fang, C.** and Zhang Z., 2024. Complex Visual Question Answering based on Uniform Form and Content. *Applied Intelligence*.
5. Zhang, D., Li, H., Zeng, W., **Fang, C.**, Cheng, L., Cheng, M.M. and Han, J., 2023. Weakly Supervised Semantic Segmentation via Alternate Self-Dual Teaching. *IEEE Transactions on Image Processing*.
6. Zhang, R., Zhang, F., Qin, S., Fan, D., **Fang, C.**, Ma, J., Wan, X., Li, G. and Lin, X., 2023. Multi-Task Learning With Hierarchical Guidance for Locating and Stratifying Submucosal Tumors. *IEEE Journal of Biomedical and Health Informatics*, 27(9), pp.4478-4488.
7. Fang, C., Cheng, L., Mao, Y., Zhang, D., Fang, Y., Li, G., Qi, H. and Jiao, L., 2023. Separating noisy samples from tail classes for long-tailed image classification with label noise. *IEEE Transactions on Neural Networks and Learning Systems*.
8. Wang, S., Zang, Q., Zhao, D., **Fang, C.**, Quan, D., Wan, Y., Guo, Y. and Jiao, L., 2023. Select, purify, and exchange: A multisource unsupervised domain adaptation method for building extraction. *IEEE Transactions on Neural Networks and Learning Systems*.
9. Zhang, K., Li, Z., Cai, C., Liu, J., Xu, D., **Fang, C.**, Huang, P., Wang, Y., Yang, M. and Chang, S., 2023. Semi-supervised graph convolutional networks for the domain adaptive recognition of thyroid nodules in cross-device ultrasound images. *Medical Physics*, 50(12), pp.7806-7821.
10. **Fang, C.***, Wang, Q.*, Cheng, L., Gao, Z., Pan, C., Cao, Z., Zheng, Z. and Zhang, D., 2023. Reliable mutual distillation for medical image segmentation under imperfect annotations. *IEEE Transactions on Medical Imaging*.

11. **Fang, C.***, Tian, H.*, Zhang, D., Zhang, Q., Han, J. and Han, J., 2022. Densely nested top-down flows for salient object detection. *Science China Information Sciences*, 65(8), p.182103.
12. Qu, T., Wang, X., **Fang, C.**, Mao, L., Li, J., Li, P., Qu, J., Li, X., Xue, H., Yu, Y. and Jin, Z., 2022. M3Net: A multi-scale multi-view framework for multi-phase pancreas segmentation based on cross-phase non-local attention. *Medical image analysis*, 75, p.102232.
13. Zhao, G.*, **Fang, C.***, Li, G., Jiao, L. and Yu, Y., 2021. Contralaterally enhanced networks for thoracic disease detection. *IEEE Transactions on Medical Imaging*, 40(9), pp.2428-2438.
14. Zhu, F., **Fang, C.** and Ma, K.K., 2020. PNEN: Pyramid non-local enhanced networks. *IEEE Transactions on Image Processing*, 29, pp.8831-8841.
15. **Fang, C.**, Li, G., Han, X. and Yu, Y., 2019. Self-enhanced convolutional network for facial video hallucination. *IEEE Transactions on Image Processing*, 29, pp.3078-3090.
16. **Fang, C.**, Liao, Z. and Yu, Y., 2018. Piecewise flat embedding for image segmentation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 41(6), pp.1470-1485.
17. Li, Z., Fan, X., Shang, Z., Zhang, L., Zhen, H. and **Fang, C.**, 2021. Towards computational analytics of 3D neuron images using deep adversarial learning. *Neurocomputing*, 438, pp.323-333.
18. Zhang, W., **Fang, C.** and Li, G., 2017. Automatic colorization with improved spatial coherence and boundary localization. *Journal of Computer Science and Technology*, 32, pp.494-506.

PEER-REVIEWED CONFERENCE ARTICLES

* indicates equal contribution, and † indicates corresponding author.

1. Li, Y.*, Cheng, D.*†, **Fang, C.†**, Jiao, C., Wang, N., and Gao, X., 2024. Disentangling Identity Features from Interference Factors for Cloth-Changing Person Re-Identification. In *Proceedings of the ACM International Conference on Multimedia*.
2. Wang, Y., Cheng, L., **Fang, C.**, Zhang, D., Duan, M., and Wang, M., 2024. Revisiting the Power of Prompt for Visual Tuning. In *Proceedings of the International Conference on Machine Learning*.
3. **Fang, C.**, Zhou, Z., Chen, J., Su, H., Wu, Q. and Li, G., 2024. Variance-Insensitive and Target-Preserving Mask Refinement for Interactive Image Segmentation. In *Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 38, No. 2, pp. 1698-1706)*.
4. Leng, Y., **Fang, C.**, Li, G., Fang, Y. and Li, G., 2024. Removing Interference and Recovering Content Imaginatively for Visible Watermark Removal. In *Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 38, No. 4, pp. 2983-2990)*.
5. He, J., Cheng, L., **Fang, C.**, Feng, Z., Mu, T. and Song, M., 2024. Progressive Feature Self-Reinforcement for Weakly Supervised Semantic Segmentation. In *Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 38, No. 3, pp. 2085-2093)*.
6. Zhang, Z., Chen, W., **Fang, C.**, Li, Z., Chen, L., Lin, L. and Li, G., 2023. RankMatch: Fostering Confidence and Consistency in Learning with Noisy Labels. In *Proceedings of the IEEE International Conference on Computer Vision (pp. 1644-1654)*.
7. Zhong, W., **Fang, C.**, Cai, Y., Wei, P., Zhao, G., Lin, L. and Li, G., 2023. Identity-preserving talking face generation with landmark and appearance priors. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 9729-9738)*.
8. Nie, Y.*, **Fang, C.***, Cheng, L., Lin, L. and Li, G., 2023, June. Adapting object size variance and class imbalance for semi-supervised object detection. In *Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 37, No. 2, pp. 1966-1974)*.
9. Wang, K., Zhuang, J., Li, G., **Fang, C.**, Cheng, L., Lin, L. and Zhou, F., 2023, June. De-biased teacher: Rethinking iou matching for semi-supervised object detection. In *Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 37, No. 2, pp. 2573-2580)*.
10. Pan, C., Qi, B., Zhao, G., Liu, J., **Fang, C.**, Zhang, D. and Li, J., 2022, December. Deep 3D vessel segmentation based on cross transformer network. In *IEEE international conference on bioinformatics and biomedicine (pp. 1115-1120)*.
11. Cheng, L., **Fang, C.**, Zhang, D., Li, G. and Huang, G., 2022, October. Compound batch normalization for long-tailed image classification. In *Proceedings of the ACM International Conference on Multimedia (pp. 1925-1934)*.
12. Wang, K., Nie, Y., **Fang, C.**, Han, C., Wu, X., Wang, X., Lin, L., Zhou, F. and Li, G., 2022, July. Double-Check Soft Teacher for Semi-Supervised Object Detection. In *IJCAI (pp. 1430-1436)*.
13. **Fang, C.**, Wang, L., Zhang, D., Xu, J., Yuan, Y. and Han, J., 2022. Incremental cross-view mutual distillation for self-supervised medical CT synthesis. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (pp. 20677-20686)*.
14. Li, J., **Fang, C.** and Li, G., 2022, October. Gradient-Rebalanced Uncertainty Minimization for Cross-Site Adaptation of Medical Image Segmentation. In *Chinese Conference on Pattern Recognition and Computer Vision (pp. 138-151)*.
15. Pan, C., Zhao, G., Fang, J., Qi, B., Liu, J., **Fang, C.**, Zhang, D., Li, J. and Yu, Y., 2022, September. Computer-aided tuberculosis diagnosis with attribute reasoning assistance. In *International Conference on Medical Image Computing and Computer-Assisted Intervention (pp. 623-633)*.

16. Zhao, X., **Fang, C.**, Fan, D.J., Lin, X., Gao, F. and Li, G., 2022, March. Cross-level contrastive learning and consistency constraint for semi-supervised medical image segmentation. In IEEE International Symposium on Biomedical Imaging.
17. Huang, J., **Fang, C.**, Chen, W., Chai, Z., Wei, X., Wei, P., Lin, L. and Li, G., 2021. Trash to treasure: Harvesting ood data with cross-modal matching for open-set semi-supervised learning. In Proceedings of the IEEE International Conference on Computer Vision (pp. 8310-8319).
18. Huang, Y., Liang, X. and **Fang, C.**, 2021. CALLip: Lipreading using contrastive and attribute learning. In Proceedings of the ACM International Conference on Multimedia (pp. 2492-2500).
19. Qi, B., Zhao, G., Wei, X., **Fang, C.**, Chen, Z. and Li, J., 2021, December. Weakly Supervised Disease Localization in Chest X-rays via Looking into Image Relations. In IEEE International Conference on Bioinformatics and Biomedicine (pp. 1477-1480).
20. Zhao, X., **Fang, C.**, Gao, F., De-Jun, F.A.N., Lin, X. and Li, G., 2021, April. Deep transformers for fast small intestine grounding in capsule endoscope video. In IEEE International Symposium on Biomedical Imaging (pp. 150-154).
21. Cai, C., Xu, D., **Fang, C.**, Yang, M. and Li, Z., 2021. Graph neural networks for the cross-domain histopathological image classification. In IEEE International Symposium on Biomedical Imaging (pp. 1953-1957).
22. Wang, J., Zhou, S., Fang, C., Wang, L. and Wang, J., 2020. Meta corrupted pixels mining for medical image segmentation. In Medical Image Computing and Computer Assisted Intervention (pp. 335-345).
23. Fang, C., Li, G., Pan, C., Li, Y. and Yu, Y., 2019. Globally guided progressive fusion network for 3D pancreas segmentation. In Medical Image Computing and Computer Assisted Intervention (pp. 210-218).
24. Li, Z., Fang, C. and Zhang, S., 2018. Deep feature representation for the computational analytics of 3D neuronal morphology. In IEEE International Symposium on Biomedical Imaging (pp. 926-929).
25. Yu, Y., **Fang, C.** and Liao, Z., 2015. Piecewise flat embedding for image segmentation. In Proceedings of the IEEE international conference on computer vision (pp. 1368-1376).
26. Li, Z., Zhu, J., Lan, K., Li, C. and **Fang, C.**, 2014, December. Improved techniques for multi-view registration with motion averaging. In International Conference on 3D Vision (Vol. 1, pp. 713-719).

CHINESE JOURNAL ARTICLES

1. **Fang C.**, Li X., Li Z., Jiao L. and Zhang D., 2022. Interactive Dual-Model Learning for Semi-supervised Medical Image Segmentation. ACTA AUTOMATICA SINICA.

CHINESE PATENTS

1. 程乐超, 田海滨, 方超伟, 张鼎文. 一种轻量级的显著性物体检测系统及方法. No. 202210565928.9. 2022/12/02.
2. 程乐超, 方超伟, 李根. 基于混合批归一化的长尾学习图像分类、训练方法及装置. No. 202210794485.0. 2022/07/07.
3. 程乐超, 李雪, 方超伟, 张鼎文. 一种基于双模型交互学习的半监督医学图像分割方法及装置. No. 202210228536.3. 2022/05/17.
4. 程乐超, 王良, 方超伟, 张鼎文. 一种跨模态核磁共振超分网络及图像超分辨率方法. No. 202210250052.9. 2022/05/16.

RESEARCH EXPERIENCES

- **Xidian University** Xi'an, China
Associate Professor at School of Artificial Intelligence 09/2020 - Current
 1. Develop real-world image super-resolution techniques.
 2. Develop visible watermark removal techniques.
- **Xidian University** Xi'an, China
Lecturer at School of Artificial Intelligence 03/2020 - 09/2023
 1. Develop natural/medical image synthesis and restoration models.
 2. Develop network optimization algorithms under low-quality training data (few, noisy, or long-tailed training data).
 3. Develop learning algorithms for transferring models across domains.
 4. Design network architectures for combining multi-modal information.
 5. Develop visible watermark removal techniques.
- **The University of Hong Kong** Hong Kong
Ph.D. candidate at Department of Computer Science 09/2015 - 12/2019
 1. Develop pixel-wise non-linear embedding algorithm for unsupervised image segmentation.
 2. Develop video super-resolution models based on frame-recurrent propagation strategy and LSTM modules.
 3. Develop 3D medical image segmentation network for pancreas segmentation.
 4. Develop low-level image processing algorithms such as edge-aware smoothing and image colorization.
- **Deepwise** Beijing, China
Intern at Deepwise AI Lab 02/2019 - 05/2019
 1. Finish the research project on 3D medical image segmentation.
 2. Conduct engineering development on removing occlusions on medical images caused by manual marks.

- **Zhejiang University**

Hangzhou, China

Visiting student at College of Computer Science and Technologies

12/2014 - 05/2015, 06/2017 - 12/2017

1. Develop pixel-wise non-linear embedding algorithm for unsupervised image segmentation.
2. Try to study on audio-driven face talking modelling.

- **Xi'an Jiaotong University**

Xi'an, China

Postgraduate student at Institute of Artificial Intelligence and Robotics

09/2013 - 06/2015

1. Maintain the lane generation system for an intelligent car.

TEACHING RECORD

<i>Semester</i>	<i>Course Name</i>	<i>Course ID</i>	<i>Class Hour</i>
2020-2023 Spring	Deep Learning (professional course)	AI205010-04	32
2021-2023 Spring	Deep Learning (general course)	AI006007-01	8
2021-2023 Spring	Specialty Experiment Based on Intelligent System	AI202009-02	32

PROFESSIONAL ACTIVITIES

- Guest editor for journals
 1. Multimedia Tools and Applications, 2022-current
- Organizer for conferences/symposiums
 1. Program Co-chair of The 3rd International Workshop On Human-Centric Multimedia Analysis at ACM MM 2022
- Reviewer for journals
 1. IEEE Transactions on Human-Machine Systems
 2. IEEE Transactions on Image Processing
 3. IEEE Transactions on Neural Networks and Learning Systems
 4. IEEE Transactions on Cybernetics
 5. IEEE Transactions on Cognitive and Development Systems
 6. IEEE Transactions on Circuits and Systems for Video Technology
 7. IEEE Transactions on Multimedia
 8. Medical Image Analysis
 9. IEEE Journal of Biomedical and Health Informatics
 10. The Visual Computer
- Reviewer for conferences
 1. ECAI 2024 (SPC)
 2. CVPR 2021-2024
 3. ICCV 2023
 4. ECCV 2022-2024
 5. AAAI 2021-2024
 6. ACM MM 2023-2024
 7. MICCAI 2020, 2022
 8. NeurIPS 2021
- Memberships
 1. 中国人工智能学会会员(CAAI Member), 2022-2023
 2. 中国图像图形学会会员(CSIG Member), 2021-2022
- Mentorships
 1. Mentor for undergraduate students (~ 20), 2020-2023
- Committees
 1. Thesis defense committee for postgraduate students, 2021-2023
 2. Thesis defense committee for undergraduate students, 2021-2023
 3. Committee for postgraduate reexamination, 2022-2023
 4. Secretary for postgraduate reexamination, 2020-2021
- Advocates
 1. Undergraduate admission advocate for XDU, 2021

HOBBIES

- Reading professional/literary books; running; swimming.