Xiaoqing GUO

Room G2325, AC1, City University of Hong Kong, Kowloon, Hong Kong.
Email: xiaoqingguo1128@gmail.com ⋄ **Web**: https://Guo-Xiaoqing.github.io/

EDUCATION

City University of Hong Kong (CityU), Hong Kong   Sep. 2018 - Present
Ph.D. in Electrical Engineering (EE), GPA: 3.925/4
Supervisor: Prof. Yixuan Yuan

Beihang University (BUAA), Beijing, China   Sep. 2014 - Jun. 2018
B.E. in Biomedical Engineering (BME), GPA: 3.64/4
Supervisor: Prof. Yu Wang (**Honor: Outstanding Undergraduate Thesis Award**)

PREVIOUS WORK EXPERIENCE

Tsinghua University, Beijing, China   Sep. 2017 - Jul. 2018
Research Assistant in Department of Electrical Engineering (EE)
Supervisor: Prof. Yongfeng Huang

RESEARCH INTERESTS

Key words: medical image analysis, computer vision, deep learning, and machine learning.

My research interest is in the interdisciplinary field of medical image analysis, computer vision, and machine learning, aiming to create innovative intelligent systems that can support the high-quality medical diagnosis and interventions. In the technical aspect, I mainly focus on developing *annotation-efficient deep learning* solutions to achieve trustworthy and effective intelligent systems.

Recently, I am dedicated to out-of-distribution generalization, learning with noisy labels, few-shot learning, and zero-shot learning. Previously, I studied topics of making adequate use of unlabeled data and augmenting the limited labeled data for data-efficient deep learning.

PUBLICATIONS

Journal Papers

1. **Xiaoqing Guo**, Zhen Chen, Jun Liu, Yixuan Yuan. "Non-Equivalent Images and Pixels: Confidence-Aware Resampling with Meta-Learning Mixup for Polyp Segmentation." *Medical Image Analysis (MedIA)*, vol. 78, p. 102394, 2022. (**Impact Factor: 13.828**)

2. **Xiaoqing Guo**, Jie Liu, Yixuan Yuan. "Semantic-oriented Labeled-to-unlabeled Distribution Translation for Image Segmentation." *IEEE Transactions on Medical Imaging (TMI)*, vol. 41, no. 2, pp. 434-445, 2022. (**Impact Factor: 11.037**)

3. **Xiaoqing Guo**, Chen Yang, Yixuan Yuan. "Dynamic-Weighting Hierarchical Segmentation Network for Medical Images." *Medical Image Analysis (MedIA)*, vol. 73, p. 102196, 2021. (**Impact Factor: 13.828**)

4. **Xiaoqing Guo**, Chen Yang, Yajie Liu, Yixuan Yuan. "Learn to Threshold: ThresholdNet with Confidence-Guided Manifold Mixup for Polyp Segmentation." *IEEE Transactions on Medical Imaging (TMI)*, vol. 40, no. 4, pp. 1134-1146, 2021. (**Impact Factor: 11.037**)

5. **Xiaoqing Guo**, Yixuan Yuan. "Semi-supervised WCE Image Classification with Adaptive Aggregated Attention." *Medical Image Analysis (**MedIA**)*, vol. 64, p. 101733, 2020. (**Impact Factor: 13.828**)

6. Qiushi Yang, **Xiaoqing Guo**, Zhen Chen, Peter Y.M. Woo, Yixuan Yuan. "D2-Net: Dual Disentanglement Network for Brain Tumor Segmentation with Missing Modalities." *IEEE Transactions on Medical Imaging (**TMI**)*. 2022. (**Impact Factor: 11.037**)

7. Chen Yang, **Xiaoqing Guo**, Zhen Chen, Yixuan Yuan. "Style Mining Guided Source Free Domain Adaptation for Medical Image Segmentation." *Medical Image Analysis (**MedIA**)*, vol. 79, p. 102457, 2022. (**Impact Factor: 13.828**)

8. Jie Liu, **Xiaoqing Guo**, Yixuan Yuan. "Graph-based Surgical Instrument Adaptive Segmentation via Domain-Common Knowledge." *IEEE Transactions on Medical Imaging (**TMI**)*, vol. 41, no. 3, pp. 715-726, 2022. (**Impact Factor: 11.037**)

9. Chen Yang, **Xiaoqing Guo**, Meilu Zhu, Bulat Ibragimov, Yixuan Yuan. "Progressive Mutual-Prototype Alignment with Disentangled Reconstruction for Polyp Segmentation." *IEEE Journal of Biomedical and Health Informatics (**JBHI**)*, vol. 25, no. 10, pp. 3886-3897, 2021. (**Impact Factor: 7.021**)

10. Xinyu Liu, **Xiaoqing Guo**, Yajie Liu, Yixuan Yuan. "Consolidated domain adaptive detection and localization framework for cross-device colonoscopic images." *Medical Image Analysis (**MedIA**)*, vol. 71, p. 102052, 2021. (**Impact Factor: 13.828**)

11. Zhen Chen, **Xiaoqing Guo**, Peter Y. M. Woo, Yixuan Yuan. "Super-Resolution Enhanced Medical Image Diagnosis with Sample Affinity Interaction." *IEEE Transactions on Medical Imaging (**TMI**)*, vol. 40, no. 5, pp. 1377-1389, 2021. (**Impact Factor: 11.037**)

12. Peter YM Woo, Desiree KK Wong, Yixuan Yuan, **Xiaoqing Guo**, Michael KW See, Matthew Tam, Alain KS Wong, Kwong-Yau Chan. "A Morphometric Analysis of Commonly Used Craniometric Approaches for Freehand Ventriculoperitoneal Shunting." *Operative Neurosurgery*, 2021. (**Impact Factor: 2.817**)

13. Zhongliang Yang, **Xiaoqing Guo**, Ziming Chen, Yongfeng Huang, Yujin Zhang. "RNN-stega: Linguistic steganography based on recurrent neural networks." *IEEE Transactions on Information Forensics and Security (**TIFS**)*, 14(5): 1280-1295, 2019. (**Impact Factor: 7.231**)

Conference Papers

1. **Xiaoqing Guo**, Jie Liu, Tongliang Liu, Yixuan Yuan. "SimT: Handling Open-set Noise for Domain Adaptive Semantic Segmentation." *IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2022**)*, New Orleans, USA.

2. **Xiaoqing Guo**, Yixuan Yuan. "Joint Class-Affinity Loss Correction for Robust Medical Image Segmentation with Noisy Labels." *The 25nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI 2022**)*, Singapore.

3. **Xiaoqing Guo***, Chen Yang*, Baopu Li, Yixuan Yuan. "MetaCorrection: Domain-aware Meta Loss Correction for Unsupervised Domain Adaptation in Semantic Segmentation." *IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2021**)*.

4. **Xiaoqing Guo**, Zhen Chen, Yixuan Yuan. "Complementary Network with Adaptive Receptive Fields for Melanoma Segmentation." *The 17th IEEE International Symposium on Biomedical Imaging (**ISBI 2020**)*, Iowa City, Iowa, USA.

5. **Xiaoqing Guo**, Chen Yang, Pak Lun Lam, Peter Y.M. Woo, Yixuan Yuan. "Domain Knowledge Based Brain Tumor Segmentation and Overall Survival Prediction." *Brain Lesion (BrainLes) workshop of MICCAI 2019*, Shenzhen, China.

6. **Xiaoqing Guo**, Yixuan Yuan. "Triple ANet: Adaptive Abnormal-aware Attention Network for WCE Image Classfication." *The 22nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI 2019**)*, Shenzhen, China.

7. Jie Liu, **Xiaoqing Guo**, Yixuan Yuan. "Unknown-Oriented Learning for Open Set Domain Adaptation." *The 17th European Conference on Computer Vision (**ECCV 2022**)*.

8. Yuanyuan Chen, **Xiaoqing Guo**, Yong Xia, Yixuan Yuan. "Disentangle then Calibrate: Selective Treasure Sharing for Generalized Rare Disease Diagnosis." *The 25nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI 2022**)*.

9. Jie Liu, **Xiaoqing Guo**, Baopu Li, Yixuan Yuan. "JDS: Joint Domain and Semantic Prediction for Domain Adaptation of Semantic Segmentation." *IEEE International Conference on Intelligent Robots and Systems (**IROS 2021**)*, Prague, Czech Republic.

10. Jie Liu, **Xiaoqing Guo**, Yixuan Yuan. "Prototypical Interaction Graph for Unsupervised Domain Adaptation in Surgical Instrument Segmentation." *The 24nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI 2021**)*, Strasbourg, France.

11. Wuyang Li, Chen Yang, Jie Liu, Xinyu Liu, **Xiaoqing Guo**, Yixuan Yuan. "Comprehensive Polyp Detection and Segmentation with Heterogeneous Endoscopic Data." *The 3rd International Endoscopy Computer Vision Challenge and Workshop (EndoCV) of ISBI 2021, Nice, France.* (Ranked **1st** place in polyp detection)

12. Zhen Chen, **Xiaoqing Guo**, Chen Yang, Bulat Ibragimov, Yixuan Yuan. "Joint Spatial-Wavelet Dual-Stream Network for Super-Resolution." *The 23nd International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI 2020**)*, Lima, Peru.

13. Yixuan Yuan, Wenjian Qin, **Xiaoqing Guo**, Mark Buyyounouski, Steve Hancock, Bin Han, Lei Xing. "Prostate Segmentation with Encoder-Decoder Densely Connected Convolutional Network (ED-DenseNet)." *The 16th IEEE International Symposium on Biomedical Imaging (**ISBI 2019**)*, Venice, Italy.

Patents

1. **Xiaoqing Guo**, Yixuan Yuan. "Unsupervised Domain Adaptive Model for 3D Prostate Zonal Segmentation."

Preprints

1. Siyuan Shan, Wen Yan, **Xiaoqing Guo**, Eric I Chang, Yubo Fan, Yan Xu. "Unsupervised End-to-end Learning for Deformable Medical Image Registration." *arXiv*, https://arxiv.org/abs/1711.08608

SELECTED AWARDS

- **MSRA Fellowship Nomination Award** (28 students in Asia), Microsoft   2021
- **Outstanding Academic Performance Award (OAPA)**, City University of Hong Kong 2021
- **Research Tuition Scholarship (RTS)**, City University of Hong Kong   2021 - 2022

- **First in polyp detection**, 3rd International Endoscopy Computer Vision Challenge and Workshop (EndoCV2021)   2021

- **Outstanding Academic Performance Award (OAPA)**, City University of Hong Kong 2020

- **Research Tuition Scholarship (RTS)**, City University of Hong Kong   2020 - 2021

- **Outstanding Academic Performance Award (OAPA)**, City University of Hong Kong 2019

- **Research Tuition Scholarship (RTS)**, City University of Hong Kong   2019 - 2020

- **Honorable Mention**, Mathematical Contest in Modeling (MCM)   2016

- **Grand Prize**, the 25th "Feng Ru Cup" Competition of Innovation (top 9/1707), BUAA   2015

TEACHING ASSISTANT

- EE4211 Computer Vision   Spring 2020, Fall 2020, Spring 2022

- EE4146 Data Engineering and Learning System   Spring 2021, Fall 2021

- EE3919 Medical Imaging and Signal Processing   Fall 2019

PROFESSIONAL ACTIVITIES

Journal Reviewers

- IEEE Transactions on Medical Imaging (IEEE TMI)

- IEEE Transactions on Image Processing (IEEE TIP)

- Pattern Recognition

- Medical Physics

Conference Reviewers

- CVPR 2022, MICCAI 2022, ECCV 2022

- ISBI 2021, MICCAI 2021

- MICCAI 2019

Conference Presentations

- CVPR 2021, Virtual   Jun. 2021

- MICCAI 2019, Shenzhen, China   Oct. 2019

- ISBI 2019, Venice, Italy   Apr. 2019