

## RESEARCH INTERESTS

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Computer Vision, Machine Learning, Multi-modal and 3D Vision

## EDUCATION

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**The Chinese University of Hong Kong (CUHK)**

Ph.D., Electronic Engineering

Aug. 2023 - Now

Advisor: Prof. [Yixuan Yuan](#)

**Xiamen University (XMU)**

M.S., Information & Communication Engineering

Sep. 2019 - Jun. 2022

Advisor: Prof. [Xinghao Ding](#) & Prof. [Yue Huang](#)

**Xiamen University (XMU)**

B.S., Information & Communication Engineering

Sep. 2015 - Jun. 2019

GPA: 3.71/4.0 & Ranking: 5/87

## SELECTED PUBLICATIONS & MANUSCRIPTS

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**ICCV 2023** [\[link\]](#): C. Li<sup>\*1</sup>, B. Feng\*, Z. Fan\*, P. Wang, Z. Wang, “StegaNeRF: Embedding Invisible Information within Neural Radiance Fields”, IEEE International Conference on Computer Vision.

**ICASSP 2023** [\[link\]](#): Y. Liu, C. Li, X. Tu, Y. Huang, X. Ding “Hint-Dynamic Knowledge Distillation”, IEEE International Conference on Acoustics, Speech, and Signal Processing.

**ECCV 2022** [\[link\]](#): C. Li, M. Lin, Z. Ding, N. Lin, Y. Zhuang, X. Ding, Y. Huang, L. Cao, “Knowledge Condensation Distillation”, European Conference on Computer Vision.

**MICCAI 2021** [\[link\]](#): C. Li\*, Y. Zhang\*, X. Lin, L. Sun, Y. Zhuang, Y. Huang, X. Ding, Y. Yu, “Generator Versus Segmentor: Pseudo-healthy Synthesis”, International Conference on Medical Image Computing and Computer Assisted Intervention.

**ICIP 2021** [\[link\]](#): C. Li, Y. Zhang, Z. Liang, X. Ding, Y. Huang, “Consistent Posterior Distributions under Vessel-Mixing: A Regularization for Cross-Domain Retinal Artery/Vein Classification”, IEEE International Conference on Image Processing.

**CIKM 2021** [\[link\]](#): Z. Liang, Y. Rong, C. Li, Y. Zhang, Y. Huang, T. Xu, X. Ding, J. Huang, “Unsupervised Large-Scale Social Network Alignment via Cross Network Embedding”, Conference on Information and Knowledge Management.

**NCA 2021** [\[link\]](#): C. Li, W. Ma, L. Sun, Y. Huang, X. Ding, Y. Huang, G. Wang, Y. Yu, “Hierarchical Deep Network with Uncertainty-aware Semi-supervised Learning for Vessel Segmentation”, Neural Computing and Applications.

**CBM 2021** [\[link\]](#): C. Li, Q. Qi, X. Ding, Y. Huang, D. Liang, Y. Yu, “Domain Generalization on Medical Imaging Classification using Episodic Training with Task Augmentation”, Computers in Biology and Medicine.

**CBM 2021** [\[link\]](#): L. Sun, C. Li, X. Ding, Y. Huang, G. Wang, Y. Yu, “Few-shot Medical Image Segmentation using a Global Correlation Network with Discriminative Embedding”, Computers in Biology and Medicine.

## SELECTED PROJECTS

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**Data-Efficient Invisible Knowledge Instillation into NeRF**

Jun. 2022 - Now

Neural Radiance Field (NeRF) serves as an emerging technique of novel view synthesis, representing a 3D scene using MLPs and differentiable volume rendering. In our work **StegaNeRF** submitted to CVPR 2023, we notice the piracy concern when distributing our NeRF assets on the Internet. To address it, we signify an initial exploration into instilling customizable, imperceptible, and recoverable information to NeRF renderings. This project reveals the ability of NeRF in embedding secrete information (*e.g.*, digital signature, multi-modal watermarks) without sacrificing the rendering quality. We sincerely hope this work will promote more and more people play and share their NeRF arts online.

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<sup>1</sup>\* denotes equal-contribution first authorship.

## Data-Efficient Knowledge Distillation with Fewer Instances

Feb. 2022 - Jul. 2022

Knowledge distillation (KD) plays a key role in developing lightweight networks, transferring the knowledge from a high-capacity teacher network to strengthen a smaller student one. In our work **Knowledge Condensation Distillation** in [ECCV 2022] we explore an data-efficient distillation framework by exploiting a knowledge condensation strategy, which dynamically identifies and summarizes the informative knowledge points as a compact knowledge set alongside the knowledge transfer. In our another work of **Hint-Dynamic Distillation** in [ICASSP 2023], we study the diverse effect of different knowledge hints across the distillation procedure, which motivates us to exploit a dynamic learning framework to promote the efficient knowledge utilization of the various knowledge hints from the teacher.

## Data-Efficient Pseudo-Healthy Synthesis & Anomaly Segmentation

Sep. 2020 - Jan. 2022

The task of pseudo-healthy synthesis generates a subject-specific pathology-free image from a pathological one. Recent GAN-based approaches inevitably fall into the trade-off between preserving the subject-specific identity and generating healthy-like appearances. In our work **GVS** in [MICCAI 2021], we propose a novel adversarial training regime, Generator versus Segmentor, to alleviate this trade-off by a divide-and-conquer strategy. In our another work **ISCT**, we aim to address a dual task called unsupervised anomaly segmentation, which segments the anomalies (e.g., lesions) without ever seen any the corresponding samples. We propose a novel semantic-based manifold serving as a special auto-encoder, which achieves accurate location of the unseen lesions in brain MRI.

## Data-Efficient (Medical) Image Segmentation

Jul. 2020 - Sep. 2021

Given the limitation of the conventional deep learning strictly requiring massive well-labeled *i.i.d* training data, we explore learning methods on imperfect data. Focusing on the interdisciplinary application of medical imaging segmentation, we study the topics of generalization (unsupervised domain adaptation/domain generalization), semi-supervised learning, few-shot learning, *etc.* These proposed methods are extensively evaluated on the benchmarks of retinal fund images, abdominal organ CT, which demonstrates the value of our works in clinical scenarios. Please see **Vessel-Mixing** for unsupervised domain adaptation in [ICIP 2021], **UASS** for semi-supervised learning in [NCA 2021], **Task-Aug** for domain generalization in [CBM 2021], **GCN-DE** for few-shot learning in [CBM 2021] for more details.

## SELECTED EXPERIENCE

Deepwise, Research Intern

Jan. 2021 - Oct. 2021

Topic: Liver image segmentation, Advisor: Prof. [Yizhou Yu](#)

SmartDSP Lab, Xiamen University, Research Assistant

Sep. 2018 - Aug. 2019

Topic: Image semantic segmentation, Advisor: Prof. [Xinghao Ding](#)

## SELECTED HONORS & AWARDS

### Honors

- Outstanding Master's Thesis of Fujian Province Jun. 2022
- Outstanding Graduates of Xiamen University Jun. 2022
- Dean's Honor List May. 2017

### Scholarship

- Anniversary Scholarship of Xiamen University Mar. 2022
- Panasonic Scholarship Oct. 2018
- Clarion Scholarship Oct. 2017
- The First Prize Scholarship of Xiamen University 2016-2022

## SELECTED SERVICES

Journal Reviewer: PR, TNNLS, NCA

Conference Reviewer: ICLR'24, NeurIPS'23, CVPR'23/24, ICCV'23, ACM MM'23, MICCAI'23