Chenxin Li

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RESEARCH INTERESTS

Implicit Neural Representation, Neural Radiance Fields, Data & Model Efficient Learning

EDUCATION

The Hong Kong Polytechnic University (PolyU) Sep. 2022 - Dec. 2022
Ph.D., Department of Computing

Xiamen University (XMU) Sep. 2019 - Jun. 2022
M.S., Information & Communication Engineering Advisor: Prof. Xinghao Ding & Prof. Yue Huang

Xiamen University (XMU) Sep. 2015 - Jun. 2019
B.S., Information & Communication Engineering GPA: 3.71/4.0 & Ranking: 5/87

SELECTED PUBLICATIONS & MANUSCRIPTS

CVPR 2023 (Under Review) [link]: **C. Li***[1], B. Feng*, Z. Fan*, P. Wang, Z. Wang, "`StegaNeRF: Embedding Invisible Information within Neural Radiance Fields`", The IEEE/CVF Conference on Computer Vision and Pattern Recognition.

ICASSP 2023 (Under Review) [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]: Y. Zhang*, **C. Li***, 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

Hide Invisible Information into NeRF Jun. 2022 - Now

Neural Radiance Field (NeRF) is a emerging technique of novel view synthesis, which represents a 3D scene using simply a MLP network. In our work **StegaNeRF**, 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 watermarkers) while keeping the rendering quality, and we sincerely hope this work will impact the NeRF community.

[1] $*$ denotes equal-contribution first authorship.

Knowledge Distillation for Efficient Recognition Models Feb. 2022 - Jul. 2022

Knowledge distillation (KD) is a key strategy in developing lightweight deep networks to emphasize model efficiency, which transfers 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 efficient knowledge 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**, we investigate 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 Learning Jul. 2020 - Dec. 2021

Given the limitation of the conventional deep learning which strictly requires massive *i.i.d* training data, we explore a lot on developing learning methods on imperfect data. Focusing on the interdisciplinary application of medical imaging analysis, we explore 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 generailzaition in [CBM 2021], **GCN-DE** for few-shot learning in [CBM 2021] for more details.

EXPERIENCE

Deepwise, Research Intern Jan. 2021 - Oct. 2021
Topic: Liver image segmention, Advisor: Prof. Yizhou Yu

State Grid, Applied Research Intern Oct. 2020 - Dec. 2020
Topic: Electrical data mining

SmartDSP Lab, Xiamen University, Research Assistant Sep. 2018 - Aug. 2019
Topic: Image semantic segmentation, Advisor: Prof. Xinghao Ding

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

SERVICES

Journal Reviewer: Pattern Recognition (PR)