Kechun Liu

Curriculum Vitae

Updated Oct, 2023
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Research Interests

I am a Ph.D. student in the GRAIL lab at the University of Washington, Seattle, advised by Prof. Linda Shapiro. My research interests are in the area of computer vision (image representation learning, generative models, NeRF), and machine learning for medical image analysis.

Education

2019–present **PhD, Computer Science & Engineering**, *University of Washington, Seattle*.
Machine Learning and Deep Learning for Medical Image Analysis.
Advisor: Prof.Linda Shapiro GPA:3.87/4.0

2015–2019 **Bachelor of Engineering, Electrical Engineering**, *Tsinghua University*, Beijing, China.
GPA: 3.74/4.0 (Rank 20/216)

Publications

2023 **Liu, Kechun**, Beibin Li, Wenjun Wu, Caitlin May, Oliver Chang, Stevan Knezevich, Lisa Reisch, Joann Elmore, and Linda Shapiro. Vsgd-net: Virtual staining guided melanocyte detection on histopathological images. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**)*, pages 1918–1927, 2023.

2023 **Liu, Kechun**, Yitong Jiang, Inchang Choi, and Jinwei Gu. Learning image-adaptive codebooks for class-agnostic image restoration. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**)*, pages 5373–5383, October 2023.

2022 Shima Nofallah, Linda G Shapiro, Wenjun Wu, **Liu, Kechun**, Fatemeh Ghezloo, and Joann Elmore. Automated analysis of whole slide digital skin biopsy images. ***Frontiers in Artificial Intelligence***, page 209. Frontiers, 2022.

2021 **Liu, Kechun**, Mojgan Mokhtari, Beibin Li, Shima Nofallah, Caitlin May, Oliver Chang, Stevan Knezevich, Joann Elmore, and Linda Shapiro. Learning melanocytic proliferation segmentation in histopathology images from imperfect annotations. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPRw**)*, pages 3766–3775, 2021.

2019 Zefang Zong, Jie Feng, **Liu, Kechun**, Hongzhi Shi, and Yong Li. Deepdpm: Dynamic population mapping via deep neural network. In *Proceedings of the AAAI Conference on Artificial Intelligence (**AAAI**)*, volume 33, pages 1294–1301, 2019.

Experience

2023 **Software Engineer Intern**, *Rivian*, Infotainment Team.
Summer Apply Neural Radiance Field (NeRF) to vehicle camera captured data for 3D reconstruction. Implement state-of-the-art NeRF models in NeRFstudio. Combine Instant-NGP with unknown camera pose learning.

2022 **Research Intern**, *Sensebrain Technology*.
Summer&Fall **Image Representation Learning**: Learn class-agnostic image restoration and reconstruction via adaptive image representation codebooks. (published in ICCV2023) [paper][github][website]
Low-light Portrait Enhancement: Train deep learning models to enhance low-light images in Bayer format. Integrate the models to mobile device camera pipeline.

Fellowships & Awards

2019 ***Excellent Honors Graduate***, Tsinghua University
2018 ***Outstanding Student Award***, Tsinghua University
2018 ***ICBC Scholarship***, Industrial and Commercial Bank of China
2017 ***Jiang Nanxiang Scholarship***, Tsinghua University
2017 ***National Scholarship***, Tsinghua University

Academic Service

2022 Reviewer of *WACV*

Teaching

2023 **CSE473: Artificial Intelligence**.
2021,2023 **CSE576: Computer Vision**.
2023 **CSE/STAT416: Intro to Machine Learning**.