Kaifeng(Calvin) Pang

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EDUCATION

University of California, Los Angeles, Los Angeles, CA, US   Mar 2024 - Present
Ph.D. in Electrical and Computer Engineering
Co-advised by Prof. Kyunghyun Sung and Prof. Robert Candler

University of California, Los Angeles, Los Angeles, CA, US   Sep 2022 - Jun 2024
Master of Science in Electrical and Computer Engineering |GPA: 4.0/4.0
Core Courses: Matrix Analysis for Scientists and Engineers, Linear Programming, Neural Network and Deep Learning, Foundations of Statistical Machine Learning, Computer Vision, Computational Imaging, Signal and Image Processing for Biomedicine, Large-Scale Data Mining: Models and Algorithms

Nanjing University, Nanjing, Jiangsu, China   Sep 2018 - Jun 2022
Bachelor of Engineering in Electronic Science and Engineering | GPA: 4.37/5.0 (87.4)
Core Courses: Digital Image and Video Process, Introduction to Data Science, Engineering Fundamental of Artificial Intelligence, Computer Vision, Data Structure and Algorithms, Digital Signal Processing, Principle and Application of Machine Vision
Honors/Awards: Outstanding Graduates of 2022, People's Scholarship

RESEARCH INTERESTS

Medical Imaging, Deep Learning, Computer Vision, Image Enhancement

PUBLICATIONS

- Hung, Alex Ling Yu, et al. "Cross-Slice Attention and Evidential Critical Loss for Uncertainty-Aware Prostate Cancer Detection." MICCAI 2024.
- Hung, Alex Ling Yu, et al. "CSAM: A 2.5 D Cross-Slice Attention Module for Anisotropic Volumetric Medical Image Segmentation." Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision. 2024.
- Zhao, Kai, et al. "PartDiff: Image Super-resolution with Partial Diffusion Models." arXiv preprint arXiv:2307.11926 (2023).
- Pang, Kaifeng, et al. "MAg: a simple learning-based patient-level aggregation method for detecting microsatellite instability from whole-slide images." 2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI). IEEE, 2022.

RESEARCH EXPERIENCES

Reconstruction, Super-Resolution, and Denoising for Medical Imaging   Jan 2023 - Present
Graduate Student Researcher | Advisor: Prof. Kyung Sung & Dr. Kai Zhao, Sung Lab, Magnetic Resonance Research Labs, UCLA

- **Medical Imaging Super-resolution**: Design a model for achieving arbitrary-scale medical image super-resolution with Neural Explicit Representation, which can be applied in various medical image modalities, e.g., MRI and CT
- **Micro-ultrasound Imaging Reconstruction**: Design a model to reconstruct high-quality axial-plane images from acquired pseudo-sagittal-plane images in Micro-ultrasound imaging
- **MRI Denoising**: Design a Diffusion model for Diffusion-Weighted-Imaging (DWI) denoising

Deep Learning for Microsatellite Instability (MSI) Detection in Tumor Diagnosis and Treatment [GitHub] Jun 2021 - Mar 2022
Summer Research Intern | Advisor: Prof. Yuankai Huo, HRLB Lab, Vanderbilt University

- Proposed a simple learning-based patient-level aggregation method for detecting microsatellite instability from whole-slide images, which summarizes patch-level probabilities to patient-level results to improve the performance of classification
- Designed a function library that users can call directly to optimize the performance of the MSI&MSS classifier
- The paper of this project paper was accepted and published by the **2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI) [Paper]**

Reliable Pedestrian Tracking Based on Single-view RGB-D Images [GitHub]   Sep 2020 - Jun 2022
Undergraduate Research Assistant | Advisor: Prof. Yang Li, emAI Lab, Nanjing University

- Used RGB-D images with depth information to improve the skeleton connections in the scene of human occlusions and overlapping
- Explored several different RGB-D feature fusion networks while proposing a cross-fusion feature network that fuses RGB-D features at different depths of the network
- Proposed a cascade pipeline that combines different tasks, including human pose estimation, human detection, and human tracking

- Verified the effectiveness of the proposed RGB-D cross-fusion feature network by COCO-AP index and self-designed indexes

WORKING EXPERIENCES

Department of Electrical and Computer Engineering, UCLA   Jan 2024 - Jun 2024
Teaching Assistant

- ECE C147/C247 Neural Networks and Deep Learning, ECE 239AS.3 Advanced Neural Networks and Deep Learning
- Responsible for organizing lectures, hosting office hours, and grading.

Break Through Tech AI, Department of Computer Science, UCLA [Link]   May 2023 - Dec 2023
Graduate Tutor / Teaching Assistant

- Responsible for grading, hosting office hours, helping give lectures about machine learning and deep learning
- Responsible for tracking project teams' progress

TECHNICAL SKILLS

Programming Language: Python, C, C++, Matlab
Libraries: PyTorch, OpenCV, Sklearn, TensorFlow, Pandas
Other Tools: Jupyter, LaTeX, Microsoft Office, Adobe Photoshop