Xiang, Tiange

Email: tiangex@outlook.com
Phone: (+86)13307201225
Webpage: https://tiangexiang.github.io/
Github: https://github.com/tiangexiang

Education Background

The University of Sydney September 2017 – June 2022

- **Bachelor of Science** in **Computer Science and Technology (Advanced) (Honors)**
- **WES GPA: 4.0/4.0, WAM: 91.7/100 (High Distinction, First-Class Honors expected).**
- **Dean's List** for Excellent Academic Performance in 2019; **Undergraduate Senior High Honor Roll** for top academic performance in 2019; **Academic Merit Prize** for 2018 and 2019 (top 2% in the University of Sydney); **Computer Science Impact Prize** for research merit in 2019 and 2021 (1 per year in the School of Computer Science).

Publications (* indicates equal contributions, alphabetical order)

- **Tiange Xiang**, Chaoyi Zhang, Yang Song, Jianhui Yu, and Weidong Cai
  Walk in the Cloud: Learning Curves for Point Clouds Shape Analysis
  International Conference on Computer Vision (ICCV), 2021
- Xinyi Wang*, **Tiange Xiang***, Chaoyi Zhang, Yang Song, Dongnan Liu, Heng Huang, and Weidong Cai
  BiX-NAS: Searching Efficient Bi-directional Architectures for Medical Image Segmentation
  International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2021
- **Tiange Xiang**, Chaoyi Zhang, Dongnan Liu, Yang Song, Heng Huang, and Weidong Cai
  BiO-Net: Learning Recurrent Bidirectional Connections for Encoder-Decoder Architecture
  International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2020
- **Tiange Xiang**, Yongyi Lu, Alan Yuille, Chaoyi Zhang, Weidong Cai, and Zongwei Zhou
  In-painting Radiography Images for Unsupervised Anomaly Detection
  Anomalous conference (under review)
- **Tiange Xiang,** Yutian Lei, Jun Liu, and Dong Huang
  In Guiding Body Meshes to Global 3D Coordinates from a Monocular RGB Image
  Anomalous conference (under review)
- **Tiange Xiang**, Chaoyi Zhang, Yang Song, Siqi Liu, Hongliang Yuan, and Weidong Cai
  Partial Graph Reasoning for Neural Network Regularization
  Anomalous conference (under review)
- **Tiange Xiang**, Hongliang Yuan, Mingyan Zhu, and Jue Wang
  Two-Stage Monte Carlo Denoising with Adaptive Sampling and Kernel Pool
  IEEE Transactions on Visualization and Computer Graphics (under review)
- **Tiange Xiang**, Yang Song, Chaoyi Zhang, Dongnan Liu, Mei Chen, Fan Zhang, Heng Huang, Lauren O'Donnel, and Weidong Cai
  DSNet: A Weakly-Supervised Dual-Stream Framework for Effective Gigapixel Pathology Image Analysis
  *IEEE Transactions on Medical Imaging (**major revision**)*
- **Tiange Xiang**, Chaoyi Zhang, Xinyi Wang, Yang Song, Dongnan Liu, Heng Huang, and Weidong Cai
  Towards Bi-directional Skip Connections in Encoder-Decoder Architectures and Beyond
  Medical Image Analysis (under review)

Research Experiences

Research Intern, AIMI at Stanford University November 2021 – Present
Project: Unsupervised denoising in DMRI Supervisor: A/Prof. Akshay Chaudhari

- Focus on designing input-conditioned generative diffusion probabilistic models.
- Focus on temporal unsupervised denoising in image sequences.

Research Intern, CCVL at Johns Hopkins University June 2021 – November 2021

Project: Unsupervised anomaly detection for chest X-rays Supervisor: Prof. Alan Yuille

- Revisited Memory networks in a more effective and efficient setting.
- Formulated unsupervised anomaly detection as inpainting.

Research Intern, DeLight Lab at Carnegie Mellon University June 2021 – November 2021

Project: Human mesh reconstruction from monocular images Supervisor: Dr. Dong Huang

- Integrated a SMPL regression head to a RCNN detection framework for reconstruction of multiple human instances.
- Achieved real global human localization in the camera space.

Research Intern, Visual Computing Center at Tencent AI Lab September 2020 – May 2021

Project: Light weight denoising method for real-time rendering Supervisor: Dr. Haozhi Huang

- Upgraded kernel-prediction methods with a novel kernel pool for linear computation complexity and two-phase denoising.
- Designed multiple novel operators to enhance both algorithmic effectiveness and efficiency.

Research Intern, AI System Lab at Huawei Noah's Ark Lab May 2020 – August 2020

Project: AutoML oriented research and development Supervisor: Dr. Wenzhi Liu

- Participated in the development of an open source autoML toolkit: Vega.
- Proposed several novel NAS algorithms; Re-produced state-of-the-art NAS algorithms, including DARTS and CARS.

Research Intern, Light Speed & Quantum Studio at Tencent November 2019 – April 2020

Project: A unified approach for 3D Mesh construction from single RGB image Supervisor: Dr. Xin Wang

- Implemented the Pixel2Mesh reconstruction framework using kaolin and PyTorch-3D.
- Designed a novel reconstruction algorithm combined both voxel and graph representations.

Research Intern, Institute of Computing Technology, Chinese Academy of Sciences November 2018 – February 2019

Project: CBIR engine for pathological images with deep learning models Supervisor: Dr. Fa Zhang

- Fine-tuned multiple SOTA models through transfer learning to retrieve pathological images in an internal database.
- Re-implemented multiple visualization methods to provide interpretations of latent feature representations.

Research Assistant, Multimedia Lab at the University of Sydney March 2019 – Present

Project: Machine learning and vision-oriented research projects Supervisor: A/Prof. Weidong Cai

- Focus on 3D vision, machine learning, AutoML, medical imaging research.

Other Projects

- **Batched Microscopy Image Processing in ImageJ** Wrote automation scripts in Fiji to allow batch processing of microscopy images to save researchers' time. The features include a dashboard and microscopy image processing methods.
- **Data Similarity Analysis Using K-means Initialized Gaussian Mixture Model** Used GMM to analyze historical data in City2Surf marathon campaigns. Supervised by A/Prof. Masa Takatsuka.
- **Six Chinese national innovation patents (sole inventor) on advanced ML algorithms, identifiers:** [2021102713075], [2020102761572], [2020101997751], [2020101350510], [202011551623X], [2020113495258].
- **Pokemon Generation using WGAN** Generated fake pokemon images using Wasserstein-Generative Adversarial Net.
- **Flying Stickman Game** Developed a complete user-interactable game using C++ and QT with proper design patterns.

Extra-curriculum Activities

***TA in COMP3419 Graphics and Multimedia*, the University of Sydney** June 2019 – September 2019

- Provided academic tutoring twice a week for a 2-hour session each.
- Marked assignment and personal projects and answered both technical and administrative questions by all means.

***Research Mentor for Honour-year Students*, the University of Sydney** September 2020 – March 2021

- Provided one-to-one tutoring, mentoring, and supervision to the thesis project of one honour-year student.

***Student member of Faculty Board*, the University of Sydney** January 2019 – December 2019

- Proposed and revised courses, admissions, cross-institutional studies, and student assessments on behalf of all undergrads.

Research Targets

- My lifelong passion is to improve everyone's living quality and save more lives.
- My research interests include Machine Learning, Computer Vision and their combination for advancing human healthcare.