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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: 88.7/100, rank: top 1% (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 (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 cancer 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.
- ♦ Research interests: *3D vision, medical imaging, healthcare, graphics, computational imaging, and robotic vision.*