Chexuan Qiao

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EDUCATION

Trinity College, University of Cambridge *2023-2024[Expected]*
M.Eng. in Information and Computer Engineering

Trinity College, University of Cambridge *2021-2023*
B.A. in Information and Computer Engineering
First Class Honours

Fourth-year core modules: deep learning and structured data (4F10), computer vision (4F12), probabilistic machine learning (4F13), computational statistics and machine learning (4M24)

Third-year core modules: signals and systems (3F1), statistical signal processing (3F3), data transmission (3F4), information theory and coding (3F7), inference (3F8), 3D computer graphics (3G4), mathematical methods (3M1)

The University of Hong Kong *2019-2024[Expected]*
B.Eng. in Computer Engineering
CGPA 3.98/4.3

RESEARCH INTEREST

Computer vision, 3D body shape reconstruction, knowledge distillation.

RESEARCH EXPERIENCE

Final Year Project *Oct 2023 - May 2024*
Computer Vision and Robotics Group
Accurate 3D body shape reconstruction from single RGB images
Supervisor: Prof. Roberto Cipolla

- Investigating render-and-compare methods for additional loss formulation.
- Constructing iterative network updates which refines an initial guess.
- Analysing accuracy of 3D stereovision, and potential integration of triangulation with networks that provide feature extraction.

Undergraduate Research Opportunities Programme *June 2023 - September 2023*
Conservation Research Institute, University of Cambridge
Mapping Bird Distribution across Britain
Supervisor: Prof. David Coomes, Dr. Mark Wilson

- Analysed correlations between bird abundance data and environmental metrics ranging from canopy structure, woodland composition, climate and topology.
- Coded a pipeline for understory Plant Area Distribution (PAD) using MacHorn method from raw LiDAR point clouds.
- Using randomForests, created maps of predicted bird abundance across Britain.

Summer research internship *June 2022 - September 2022*
EEE, HKU

Knowledge Distillation as Efficient Pre-training (KDEP) on Vision Transformers
Supervisor: Dr. Ruifei He, Dr. Xiaojuan Qi

- Studied transformer architectures, and conducted a literature search for suitable teacher networks. Implemented KDEP on DeiT and Swin transformers.
- Conducted ablation studies on optimiser, training schedule, and downstream datasets (CIFAR100, FLOWERS, Stanford CARS).
- Demonstrated that KDEP achieves 3x speed up when applied to vision transformers.

Summer research internship *May 2020 - September 2020*
EEE, HKU
Computer Vision and Image Segmentation
Supervisor: Dr. Xiaojuan Qi

- Studied the broader aspects of computer vision, neural networks, and PyTorch as preparation for the research.
- Constructed a knowledge-distillation PSPNet which achieved a 2 percent mIoU increase from the original PSPNet.

HONORS, SCHOLARSHIPS & AWARDS

Junior Scholar, Trinity College, University of Cambridge	*2022*
Cambridge Trust Scholarship, University of Cambridge	*2021-2024*
EE 72 Philip Ng Scholarship, HKU	*2020-2021*
HKU-Cambridge Joint Recruitment Scheme	*2020*
Dean's Honours List, HKU	*2019-2021*