

TZE HO ELDEN TSE

<https://eldentse.github.io>

Intelligent Robotics Laboratory, School of Computer Science, University of Birmingham

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EDUCATION

University of Birmingham, United Kingdom

Feb. 2020 - 2024

Ph.D. student in Computer Science

Supervised by Dr. Hyung Jin Chang, Dr. Kwang In Kim and Prof. Aleš Leonardis

Research area: Hand and Object Interactions with Graph Neural Networks

Cranfield University, United Kingdom

Sept. 2018 - Jun. 2020

PGDip in Engineering Competence

Part of BAE Systems graduate scheme

University of Oxford, United Kingdom

Oct. 2014 - Jul. 2018

M.Eng in Engineering Science (First Class Honours, 78%)

Specialised in Information Engineering

RESEARCH INTEREST

Computer Vision 3D reconstruction, 3D human body pose estimation and modelling

Machine Learning Geometric deep learning, relational learning

Robotics Visual representation for manipulation, imitation learning

WORK EXPERIENCE

Google, Canada

Nov. 2022 - Mar. 2023

Research Intern

- Topic: Multi-view interacting 3D hands reconstruction with graph neural networks
- Manager: Bardia Doosti, Danhang “Danny” Tang
- Team: Hand, Body and Faces under AR Perception

University of Birmingham, United Kingdom

Mar. 2022 - Jan. 2024

Research Assistant

- Collaboration with Dongguk University Machine Learning Lab.
- Project title: “*Graph Neural Network for Visual Recognition and Representation*”

BAE Systems, United Kingdom

Sept. 2018 - Jul. 2021

PLD Engineer

- Hardware sensor design for Eurofighter Typhoon (6 months)
- PLD verification for F-16 head-up-display (6months)
- AI R&D with Innovation and Growth Team (6 months)
- PLD verification for flight control computer (16 months)

PUBLICATIONS

Spectral Graphormer: Spectral Graph-based Transformer for Egocentric Two-Hand Reconstruction using Multi-View Color Images

Tze Ho Elden Tse, Franziska Mueller, Zhengyang Shen, Danhang Tang, Thabo Beeler, Mingsong Dou, Yinda Zhang, Sasa Petrovic, Hyung Jin Chang, Jonathan Taylor, Bardia Doosti

International Conference on Computer Vision (ICCV 2023)

DiffPose: SpatioTemporal Diffusion Model for Video-Based Human Pose Estimation

Runyang Feng, Yixing Gao, **Tze Ho Elden Tse**, Xueqing Ma, Hyung Jin Chang
International Conference on Computer Vision (ICCV 2023)

Mutual Information-Based Temporal Difference Learning for Human Pose Estimation in Video

Runyang Feng, Yixing Gao, Xueqing Ma, **Tze Ho Elden Tse**, Hyung Jin Chang
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2023)

S²Contact: Graph-based Network for 3D Hand-Object Contact Estimation with Semi-Supervised Learning

Tze Ho Elden Tse, Zhongqun Zhang, Kwang In Kim, Aleš Leonardis, Feng Zheng, Hyung Jin Chang
European Conference on Computer Vision (ECCV 2022)

Collaborative Learning for Hand and Object Reconstruction with Attention-guided Graph Convolution

Tze Ho Elden Tse, Kwang In Kim, Aleš Leonardis, Hyung Jin Chang
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2022)

TP-AE: Temporally Primed 6D Object Pose Tracking with Auto-Encoders

Linfang Zheng, Aleš Leonardis, **Tze Ho Elden Tse**, Nora Horanyi, Wei Zhang, Hua Chen, Hyung Jin Chang
The 39th IEEE Conference on Robotics and Automation (ICRA 2022)

No Need to Scream: Robust Sound-based Speaker Localisation in Challenging Scenarios

Tze Ho Elden Tse, D. De Martini and L. Marchegiani
The 11th International Conference on Social Robotics (ICSR 2019)

TEACHING

Teaching Assistant [06/2022-09/2022] MSc projects
 [02/2022-07/2022] Computer Vision and Imaging
 [09/2021-07/2022] MSc Computer Science project
 [09/2021-01/2022] Programming for Data Science and AI

ACADEMIC SERVICES

Reviewer CVPR; ECCV; ICML; ICCV; AAAI; BMVC; NeurIPS

INVITED TALKS & PRESENTATIONS

[10/2023] 3D Computer Vision
 The Hong Kong Polytechnic University (PolyU), Hong Kong

[10/2023] 7th International Workshop on Observing and Understanding Hands in Action
 (HANDS@ICCV2023), Paris, France

[10/2022] 6th International Workshop on Observing and Understanding Hands in Action
 (HANDS@ECCV2022), Tel Aviv, Israel

[10/2022] Human Body, hands, and Activities from Egocentric and Multi-view Cameras
 (HBHA@ECCV2022), Tel Aviv, Israel

[09/2022] Department of Computer Science & Engineering, Hong Kong University of Science and Technology
 (HKUST), Hong Kong

AWARDS

2014-2018 College Scholarship for Outstanding Performance in Engineering Exams

TECHNICAL STRENGTHS

Programming Languages Python, C++, SystemVerilog, VHDL

ML tools PyTorch, Tensorflow