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 - present*
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

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 - present
Research Assistant

· Collaboration with Dongguk University Machine Learning Lab.
· Project title: *"Graph Neural Network for Visual Recognition and Representation"*
In this research, we are developing a deep semantic graph neural network based
knowledge representation and learning framework for high-level vision tasks, such as
hand-object pose estimation 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)

S^{2}Contact: 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 2023-2021; ECCV 2022; ICML 2022; ICCV 2023, 2021; AAAI 2024-2022; BMVC 2021; NeurIPS 2020

INVITED TALKS & PRESENTATIONS

[10/2023]	7th International Workshop on Observing and Understanding Hands in Action (HANDS@ICCV2023), Paris, France
[10/2022]	6th International Workshop on Observing and Understands 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
Libraries	PyTorch, PyTorch Geometric, OpenCV