Tianxing Wu

https://tianxingwu.github.io

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Education

Nanyang Technological University (NTU) Singapore

Master of Science in Computer Control & Automation *Jan. 2021 – Apr. 2022*

- Supervised by Prof. Yap-Peng Tan

Harbin Engineering University (HEU) Harbin, China

Bachelor of Engineering in Automation *Aug. 2015 – June 2020*

- Supervised by Prof. Qidan Zhu, Prof. Zhi Zhang
- Average Grade: 90.04 / 100

Experience

MMLab@NTU | S-Lab Singapore

Research Associate *Apr. 2022 – Present*

- Work with Prof. Ziwei Liu on Visual Generation and Multi-modal DeepFake Detection

Lazada | Alibaba Group Singapore

Algorithm Intern *June 2021 – Feb. 2022*

- Competitive Intelligence team, work on multi-modal product matching based on CV+NLP

SenseTime Research Beijing, China

Computer Vision Research Intern *Aug. 2020 – Dec. 2020*

- General Model team, work on OCR, Image Quality Assessment and Human Action Retrieval

Publication

Rui Shao, **Tianxing Wu**, Ziwei Liu. Detecting and Grounding Multi-Modal Media Manipulation. *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023.*

Rui Shao, **Tianxing Wu**, Ziwei Liu. Detecting and Recovering Sequential DeepFake Manipulation. *European Conference on Computer Vision (**ECCV**), 2022.*

- Project Page: https://rshaojimmy.github.io/Projects/SeqDeepFake

Research & Projects

Competitive Product Matching Based on NLP *June 2021 – Feb. 2022*

M.Sc. Dissertation, performed in NTU & Lazada

- Proposed a two stage text-based product matching framework to retrieve competitive product groups on E-commerce platform
- Designed a novel loss function PNB Loss for fine-tuning Sentence-BERT in Ecommerce domain, enabling effective text representation learning on product titles with weakly-supervised labels

Image Quality Assessment for ID-card OCR *Oct. 2020 – Dec. 2020*

Project at SenseTime Research

- Implemented CNN based NR-IQA and distortion type classification
- Trained Siamese Network as pretrained model which learn from ranked synthetic image pairs
- Constructed huge non-public authentically distorted image dataset for fine-tuning

General Table Structure Recognition *Sept. 2020 – Oct. 2020*

Project at SenseTime Research

- Trained ruled-line detection model based on L-CNN network
- Developed algorithms for table structure recognition and refinement
- Achieved robust key-value extraction for complicated table (spanning cells, text out of table, etc.)

Deep Learning Based Image Preprocessing for Maritime Scenes *Jan. 2020 – June 2020*

B.Eng Thesis

- **Excellent presentation** (6 awardees of 42 students in the lab)
- Designed a new foggy image synthesis algorithm based on air scattering characteristics of sea fog
- Combined AOD-Net, DnCNN and CLAHE for defogging and denoising, with PyTorch and OpenCV
- Proposed a modular image preprocessing framework that can be effectively applied to maritime scenes

OpenVHead *Sept. 2019 – Jan. 2020*

Independent Project (Open-sourced on GitHub, 390+ stars)

- Built a vision-based head motion & facial expressions capture system for VTubers
- Front-end (Python): Face landmarks tracking using Kalman filter and mean filter; Pose estimation with PnP algorithm; Robust facial expression measure construction
- Back-end (Unity + C#): Smooth pose control with Kalman filter; Robust facial expression control using incomplete derivative PID with deadzone; Eye-blink modeling; Socket communication

★ Selected Awards & Honors

- *Honorable Mention*, Mathematical Contest in Modeling (MCM) *2018*
- *Outstanding Undergraduate Student in HEU* *2017*
- *1st Prize & Champion*, 'Shenzhen Cup' Mathematical Modeling Challenge *2017*
- *1st Prize*, Northeast China Mathematical Contest in Modeling *2017*
- *1st Prize*, China Undergraduate Mathematical Contest in Modeling (Heilongjiang Division) *2017*
- *1st Class Scholarship for Outstanding Students* *2016*

Skills

- **Programming Language**: Python, MATLAB, C
- **Software**: PyTorch, OpenCV, ROS, Simulink, Unity
- **Hardware**: STM32, 89C51, Arduino microcontrollers
- **Others**: Linux, Git

English Proficiency

- **CET-6**: **635** (Listening **218**, Reading **229**, Writing & Translating **188**)
- **IELTS**: **7.5** (Listening **8.5**, Reading **9.0**, Writing **6.0**, Speaking **6.5**)
- **GRE**: **324.5** (Verbal Reasoning **152**, Quantitative Reasoning **169**, Analytical Writing **3.5**)