Lin WU

Male • 18/04/1997 • +86 17721726716 • fiftywu@outlook.com
No. 101, Software Avenue, Yuhuatai District, Nanjing, Jiangsu Province, 210012, China

EDUCATION

• **Southeast University (SEU), *M.E*** ..... 09/2019 - 06/2022
GPA: **3.77/4.0**, Major in Control Engineering *Nanjing, China*
Topic: Deep Learning & Visual Analysis Advisor:Teng WANG & Changyin SUN

• **Wuhan University of Technology (WUT), *B.E.*** ..... 09/2015 - 06/2019
GPA: **3.90/4.0**, Major in Automation *Wuhan, China*
Topic: Evolutionary Algorithm & Machine Learning, Advisor: Jian ZHANG

RESEARCHH INTERESTS & FOUNDATION

CV, NLP, Multi-modal Learning, Representation Learning

PUBLICATIONS

• **A Coarse-to-fine Approach for Dynamic-to-static Image Translation**
Co-First Author, ***Pattern Recognition***, JCR Q1, 2022
- Techniques: Generative AI, Contextual attention, Visual Analysis & Localization

• **Multi-modal Visual Place Recognition in Dynamics-Invariant Perception Space**
First Author, ***IEEE Signal Processing Letters***, JCR Q2, 2021
- Techniques: Image Translation, Semantic Segmentation, Multi-modal Fusion

• **Structure Study of Multiple Traveling Salesman Problem using Genetic Algorithm**
Second Author, ***Youth Academic Conference of Chinese Association of Automation (YAC)***, 2019

• **Track Planning Model for Multi-UAV Based on New Multiple Ant Colony Algorithm**
First Author, ***Chinese Automation Congress (CAC)***, 2018

• **Active Learning Paradigm for Regular Expression Generation**
First Inventor, ***Chinese Patent***, 2023
- Techniques: Named entity recognition(NER), Contrast Learning, Active Learning

RESEARCH EXPERIENCE

• **Dynamics-Invariant Representation for Visual Localization** ..... 06/2020 - 05/2021
⋆Postgraduate Research Innovation Program of Jiangsu Province (Project leader)
Project Objective:
- Moving objects have an adverse effect on the vision localization system. This research project aimed at building a robust visual representation to improve key points matching in dynamic environments.
Achievement:
- *Dynamic-to-static Image Translation*: Developed a novel image translation model and demonstrated its SOTA performance in visual quality assessment, and its effectiveness in sythesis-to-real transfer and visual SLAM system. [GitHub] [P.R. Paper]
- *Multi-modal Visual Place Recognition*: Proposed a semantic prior image generator and them used BOW and SPM models to further improve recall of visual place recogniton (VPR) in dynamic scenes by combining multi-modal information. [GitHub] [IEEE S.P.L. Paper]

• **Low Light Image Enhancement via Style Transfer** ..... 04/2021 - 07/2021
⋆ Research work at ArcSoft Tech. as an image algorithm intern
Project Objective:
-In HDR, high-speed moving objects cause artifacts to appear in the composite image. This research project aimed at enhancing the low exposure image to normal level to reduce the artifacts.
Achievement:
- Developed Retinex-based Contrast-Learning model and GAN-based style transfer model, which enhanced the brightness of low exposure images and effectively suppressed the color level and noise.

• **Advanced Data Processing and Evaluation for LLMs** ..... 03/2023 - 11/2023

⋆Joint Research Work with Huawei Waterloo Research Institute in Canada. (Core member)

Project Objective:

- **Data Anonymization**: User privacy or illegal data entering model training will cause security problems. Data anonymization aimed at cleaning sensitive data using named entity recognition.
- **Answer Evaluation**: Given the reference answer, answer evaluation aimed at predicting more accurate text semantics similarity between the LLM output and the reference.s

Achievement:

- Proposed a regular expression generation algorithm using active learning and multi-level abstract analysis. Besides, developed a BERT-based model to identify entities without fixed rules.
- Proposed a topic-aware text similarity method which could segment text into several slices based on their semantics and then do the mutual retrieval. Introduced novel contrast learning design and topic-coupling degree to increase the text segmentation performance.

WORK EXPERIENCE

Huawei Technology Co., Ltd., ***AI Algorithm Engineer*** ..... 06/2022 - 02/2024

⋆Storage AI Lab, Nanjing Research Institute *Nanjing, China*

Representative projects:

• **CV**: (1) Research on industrial detection algorithm of poles of lithium battery based on X-ray imaging; (2) Research on scene adaptive rate control algorithm for video coding (H.264).

• **NLP**: (1) Research and development of text classification and sensitivity grading algorithms based on BERT series models; (2) Research on data processing AI tool chain and model evaluation algorithms of domain-specific large language model (L2 level LLM).

Achievement:

- Won the "Super Genetic Innovation Award" of the research department (top 10% selected).
- Invited to give a talk on structure of Transformer and LLMs in the product line (200+ audience).

SELECTED HONORS & AWARDS

• **Scholarship**

- Huawei Scholarship (1.5%) 06/2022
- China Electronics Technology Group Corporation LES Scholarship (2%) 06/2021
- National Encouragement Scholarship (three years in a row, 2%) 2016-2018

• **Honors**

- Outstanding Graduate of SEU (15%) 06/2022
- Outstanding Student Cadre of SEU (5%) 09/2021
- May Fourth Youth Medal of WUT (0.6%) 05/2018

• **Competitions**

- Winner in Zhuhai Wanshan International Intelligent Vessel Competition (2.5%) 11/2020
- Meritorious Winner in American International Mathematical Contest in Modeling (6.5%) .. 02/2018

SKILLS & INTERESTS

• **Languages**	English (IELTS Writing 6.5 Speaking 7.0), Mardarin (Native)
• **Computer Languages**	Python, Matlab, C/ C++
• **Frameworks & Tools**	Pytorch, TensorFlow, OpenCV, Git
• **Interests**	Hiking, table tennis, badminton, writing poetry

REFERENCES

• **Hazel Doughty** h.r.doughty@liacs.leidenuniv.nl

- Assistant Professor at Leiden Institute for Advanced Computer Science, Leiden University, Netherlands

• **Teng WANG** wangteng@seu.edu.cn

- Associate professor at School of Automation, Southeast University, China

• **Jian ZHANG** jian_zhang@whut.edu.cn

- Assistant professor at School of Automation, Wuhan University of Technology, China