Peng(Richard) Xia

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Education

Soochow University Suzhou, China
Bachelor of Science in Computer Science and Engineering *Sept. 2019 - Expected Jun. 2023*

- **GPA**: 3.7/4.0 **Average Score**: 88.13/100
- **Coursework**: Deep learning, Neural Network, Machine Learning, Computer Vision, Algorithms
- **Advisors**: Prof. Min Zhang, Dr. Juntao Li, Dr. Junhui Li

National University of Singapore Singapore
The University Alliance of the Silk Road Summer Course – Frontier in Medicine *Jun. 2022 - Jul. 2022*

- **Grade**: 90%
- **Coursework**: Drug discovery for Ocular Angiogenic Diseases, Animal Models of CardioVascular Disease

Research Experience

Long-Tailed Multi-Label Visual Recognition by VL | *MMAI, Monash University* Oct. 2022 - Present

- Generated the text description corresponding to the image through Pre-trained Model
- Pre-trained a Visual-Linguistic Model and finetuned it by contrastive learning, language-guided recognition head
- Re-balanced the weights that takes into account the impact caused by label co-occurrence
- Used a negative tolerant regularization to mitigate the over-suppression of negative labels

Chinese Grammatical Error Correction | *Institute of AI, Soochow University* Dec. 2021 – Apr. 2022

- Obtained training sets of large scale and fine grit by data augmentation
- Compressed a Transformer and improved its robustness by knowledge distillation
- Submitted a preprint on arXiv 2208.00351. [arXiv] [Code]

Neural Chat Translation | *NLP Research Centre, Soochow University* Sept. 2021 – Feb. 2022

- Trained on WMT20 and fine-tuned on chat translation corpus (BConTrasT and BMELD).
- Modeled the properties, such as role preference, dialogue coherence, and translation consistency

Lane Detection and Vehicle Departure Warning System | *Course AIEX2009 Project* Oct. 2021 – Dec. 2021

- Used the cascaded convolutional neural network to detect lane lines
- Designed a warning module for the system in case the car deviates from the lane

Fatigue Driven Detection Based on CNN | *Course AIEX2010 Project* Sept. 2021 – Dec. 2021

- Used multi-task cascaded convolutional neural network for face detection and feature point location
- Used convolutional neural network to detect the state of the eyes and mouth from ROI images

Competition Achievements

Shanghai-HK Interdisciplinary Shared Tasks "Trigger Identification" Apr. 2022 - Jun. 2022
1st place(phase 1) & 3rd place(phase 2) *Hong Kong & Shanghai, China*

- Used the BigBird model for the message representation and mean pooling
- Added extra linear layers and used R-Drop which is a simple and efficient regularization technique

The 3rd Huawei DIGIX AI Algorithm Contest Aug. 2021 - Sept. 2021
Second Prize *Nanjing, China*

- Designed an article quality discrimination algorithm to predict and discriminate the categories of articles
- Based on BERT model and PU Learning

Computer Design Contest Jan. 2021 – Mar. 2021
Winning Prize *Zhenjiang, China*

- Used BERT model to encode vehicle track data to predict lane trajector
- Designed and displayed the effect of the web page, using HTML, CSS, JavaScript

Mathematical Contest In Modeling Feb. 2021
Honorable Mention *Bedford, USA*

- Established models to explore the effects of fungi's various characteristics, environments and diversity
- Used algorithms to fit and process data about fungi; analyzed the relevant variables and came to a conclusion

Work Experience

Airdoc Technology Inc Jul. 2022 – Jan. 2023
Algorithm Intern *Shanghai, China*

- Trained a multi-modal model for predicting cognitive impairment by fundus images and clinical data
- Implemented a multi-label classification of pathological myopia by 200k+ fundus images
- Made a multi-class classification model for predicting anxiety and depression only by fundus images

China Construction Bank Jul. 2021 – Aug. 2021
Intern *Yancheng, China*

- Participated in lobby service, customer marketing, product promotion, merchant development

Patents

A fundus image prediction method for anxiety and depression based on deep learning Nov. 2022
Department of Algorithm, Airdoc Technology Inc *Shanghai, China*

- **Peng Xia**, Lie Ju,..., Zongyuan Ge & Dalei Zhang.
- CN Invention Patent. Under review.

A multi-modal method for predicting cognitive impairment based on deep learning Sep. 2022
Department of Algorithm, Airdoc Technology Inc *Shanghai, China*

- **Peng Xia**, Lie Ju,..., Zongyuan Ge & Dalei Zhang.
- CN Invention Patent. Under review.

Article quality discrimination software based on multi-model transfer pre-training Feb. 2022
NLP Research Centre, Soochow University *Suzhou, China*

- Junhui Li, **Peng Xia**, Kaide Zeng, et al.
- CN Software Copyright. 2022SR0228307.

Lane detection system based on cascaded convolutional neural network Feb. 2022
NLP Research Centre, Soochow University *Suzhou, China*

- Junhui Li, **Peng Xia**, Kaide Zeng.
- CN Software Copyright. 2022SR0248890.

Extra-curricular Activities

Science and Technology Association, Soochow University Oct. 2020 – Jul. 2021
Vice President *Suzhou, China*

- Organized several large-scale activities, such as English drama competition for freshmen
- During my tenure, the organization won the award of excellent branch association of the university

Youth League Committee, Soochow University Sept. 2020 – Oct. 2020
Volunteer for the 120th anniversary of Soochow University *Suzhou, China*

- Prepared supplies for the school's anniversary event
- Received guests; took event reports

Skills

Programming Skills: Python, JavaScript, Java, HTML/CSS, SQL, LaTeX, Git, Shell, Vim
Frameworks&Libraries: PyTorch, TensorFlow, Kerass, OpenCV, PIL, NumPy, Matplotlib, Pandas, Scikit-learn
Language Skills: English(IELTS 6.5, PTE 60, CET-6 539), Mandarin(native)