Donggang Jia

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RESEARCH INTERESTS

Computer vision, deep learning, medical imaging

EDUCATION HISTORY

M.Sc. in Artificial Intelligence (with Distinction)

University of Southampton *09/2019 – 02/2021*

- **Modules**: Computer Vision, Machine Learning, Deep learning, Reinforcement and Online Learning, Intelligence Agent, Foundations of Artificial Intelligence

B.S. in Computer Science and Technology

Beijing University of Posts and Telecommunications *09/2015 – 06/2019*

- **Modules**: Data Structure, Operating System, Foundation of Machine Learning, Digital Image Processing, Computer Networks

RESEARCH EXPERIENCE

Medical Image Segmentation Based on BCDU-Net *06/2020 -09/2020*

Advised: Prof. Xiaohao Cai, University of Southampton

- Performed medical image segmentation for skin cancer lesion pictures and retinal blood vessel pictures.
- Implemented model using PyTorch and modified network structure.
- Replaced skip-connection by ConvLSTM networks to extract spatial and timing sequence information. Chose CARAFE method as up-sampling method to utilize semantic information. Achieved state-of-the-art performance on three benchmark data sets: ISIC 2017, ISIC 2018, DRIVE.

Costa Rican Household Poverty Level Prediction *02/2020 -05/2020*

Advised: Prof. Adam Prugel-Bennett, University of Southampton

- Performed exploratory data analysis including data cleaning, feature merging, feature selection and PCA dimensional reduction.
- Implemented models such as Random Forest and LightGBM for classification and achieved 0.71 F1-score on the test set.

Image Scene Classification Based on Deep Learning Algorithm *09/2019 -12/2019*

Advised: Prof. Jonathon Hare, University of Southampton

- Extracted global features for classifier to distinguish scene classes.
- Extracted GIST features and chose SVM as classifier for traditional machine learning.
- Implemented a pre-trained Inception-ResNet V2 model and performed fine-tuning.

Design and Implementation of Multi-Label Text Classification System Based on Deep Learning*03/2019 - 06/2019*

Advised: Prof. Yanhua Yu, Beijing University of Posts and Telecommunications

- Researched on multi-label text classification problems and built corresponding system.
- Crawled 300,000 multi-label texts as dataset based on the Aliyunqi community.
- Pre-processed texts such as stop word removal and built word2vec model.
- Implemented Attention+GRU model and built a web system using Flask.

Quantitative Investment System Based on Big Data *07/2017 -09/2018*

Advised: Prof. Neng Wan, Beijing University of Posts and Telecommunications

- Crawled comments and evaluations from portals and performed text emotion analysis.

- Utilized machine learning and natural language processing (NLP) algorithms to analyze data.
- Combined emotion analysis results with stock information to give recommendations.

WORKING EXPERIENCE

Machine Learning Engineer, Beijing Deepwise Science & Technology Co., Ltd. *09/2020 -03/2021*

- Develop a model which utilizes non-enhanced CT images to detect aortic dissection instead of traditional contrast enhancement CT scan.
- Implement a pre-trained 3D-ResNet-based model for detection task.
- have achieved 90% accuracy on the data provided by the cooperative hospital.

PUBLICATIONS

- Donggang Jia, Xiaohao Cai. A Hybrid Neural Network for Medical Image Segmentation. (under review)
- Deep-learning Assessment in Pre-warning Aortic Dissection on Non-enhanced CT Images：Two-Stage Model Development and Double Center Clinical Validation. (under review)

COMPUTER SKILLS

Programming language: Python (PyTorch, TensorFlow), C++, Java
Operating System: Linux