Tan Yee Fan

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Research Interest

My research interests lie in applying AI for healthcare and medical imaging to improve clinical decision support systems. Also, I am interested in the general application of Machine Learning, Deep Learning, and Computer Vision.

Education

Multimedia University — Melaka, Malaysia
Bachelor of Computer Science (Hons) Artificial Intelligence — *November 2019 – January 2022*
CGPA: 3.97/4.0 (First-class Honours)

Multimedia University — Melaka, Malaysia
Diploma in Information Technology — *July 2017 – October 2019*
CGPA: 4.0/4.0 (Distinction)

Experience

Research Assistant — November 2021 – Present
Monash University — *MY*
- Conducted a research on brain disorders classification based on brain connectivity networks under the supervision of Assoc. Prof. Ting Chee Ming
- Conducted the literature review and experimental studies using CNN for brain disorders classification, including GAN for data augmentation

Undergraduate Research Assistant — February – August 2021
Multimedia University — *Melaka, MY*
- Conducted a research on predictive modelling for Digital Signage Advertising under the supervision of Dr. Ong Lee Yeng and Dr. Leow Meng Chew
- Investigated different models for time-series forecasting, including Statistical, AI, and Hybrid models
- Published a review paper with more than eighty research articles included, which introduced seven different models for dynamic pricing, proposed a framework for optimal model selection based on the data characteristics analysis

Research Assistant — October – November 2020
Multimedia University — *Melaka, MY*
- Worked as a team under the supervision of Dr. Ong Lee Yeng and Dr. Leow Meng Chew
- In charge of data collection for analysis. Applied web crawling and scraping techniques to gather useful data for experimental study
- Designed the experiments which applied a rule-based system for DOOH dynamic pricing, by considering the importance of each independent variable using Machine Learning models

Peer Tutor — November 2018 – March 2019
Multimedia University — *Melaka, MY*
- Held the tutor position for the subject of Mathematical Technique
- In charge of preparing relevant materials and contents to conduct the tutorial section for the subject

Research Projects

Automatic Handwritten Text Recognition for Medical Application | *Deep Learning* — June 2020 – September 2021
- Final Year Project, supervised by Assoc. Prof. Dr. Tee Connie and Assoc. Prof. Dr. Goh Kah Ong Michael
- Data collection: A different set of receipt templates were distributed to the public in acquiring different handwritten styles, obtained a sample size of 500
- Applied various data pre-processing methods before training, including skew correction, line removal, line segmentation, and data augmentation
- Proposed a framework to tackle the following problems: printed/handwritten text identification, OCR/HCR, and information classification
- Involved models: YOLOv5, Transformer, CNN, ResNet, LSTM, RNN, Bi-LSTM/RNN, NER
- The proposed ResNet-101T has obtained an outstanding performance, with an WER and CER of 9.29 and 6.12

Explainable Health Prediction with Transfer Learning | *Deep Learning* — June – November 2020
- A proposed research with aims to distinguish between healthy and sick faces, and to obtain explanation from black-box models, supervised by Assoc. Prof. Dr. Tee Connie
- Various experiments were investigated to tackle the problems of insufficient dataset, including data augmentation, GAN, and Transfer Learning
- A VGGFace model is trained, by applying transfer learning, achieved an accuracy of 0.97 in classifying the images
- Applied various Explainable AI (XAI) techniques: LIME, XRAI, IG to get model's explanation in making a decision, each techniques provides a reasonable explanation in highlighting the corresponding regions

Publication

(1) Tan, Y.F.; Connie, T.; Goh, M.K.O.; Teoh, and Andrew B.J. A Pipeline Approach to Context-Aware Handwritten Text Recognition. Appl. Sci. 2022, 12, 1870. https://doi.org/10.3390/app12041870

(2) Connie, T., Tan, Y. F., Goh, M. K. O., Hon, H. W., Kadim, Z., and Wong, L. P. (2022). Explainable health prediction from facial features with transfer learning. Journal of Intelligent & Fuzzy Systems, 42(3), 2491–2503. https://doi.org/10.3233/JIFS-211737

(3) Tan, Y.-F., Ong, L.-Y., Leow, M.-C. and Goh, Y.-X. (2021). Exploring Time-Series Forecasting Models for Dynamic Pricing in Digital Signage Advertising. Future Internet, 13(10). https://doi.org/10.3390/fi13100241

Technical Skills

Languages: Python, C/C++, Java, HTML/CSS, JavaScript, PHP, Laravel, MySQL, CLIPS, LISP, Prolog, LaTex
Developer Tools: Git, VS Code, Google Cloud Platform, Amazon Web Services
Operating System: Mac, Window
Office and Multimedia Tools: Microsoft Office, Adobe Illustrator, Adobe Premiere Pro
Linguistic: English, Mandarin, Bahasa Malaysia

Award / Certification

Dean List Award: Received for every semesters at Multimedia University
Best Diploma Student in Information Technology: Received full scholarship for Bachelor Degree Studies
Huawei Certification: HCIA-AI
Data Science 360: A certification program from LEAD

References

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