Truong Duc Tai

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Education

Industrial university of Ho Chi Minh city, Vietnam — September 2021 - Present
Bachelor of Arts: Major in Data Science (Fourth year student) — GPA: 3.48/4.0
Awards:

- Second Prize in Vietnam National Collegiate Programming Contest 2022 — Certificate
- Third Prize of International Collegiate Programming Contest - Southern Vietnam Qualifier 2023 — Certificate

Ngo Gia Tu High School, Tuy Hoa, Phu Yen — June 2021
GPA: 8.6/10
Awards: Third Prize in the Provincial Informatics Excellence Contest. — Certificate

Project

Utilizing a probabilistic encoding model combined with a linear classifier and extreme value theory for the open set recognition problem. — March 2024 - September 2024
Young Scientists Conference 2024 — *[Certificate] [Kaggle]*

- Successfully achieved the goal of accurately classifying closed sets and correctly identifying open sets. Using beta-VAE for closed set training, encoding the input images into a latent space with normal distribution. For the encoding and decoding network, Wide ResNet (WRN) was used.
- For open set recognition, we applied the Extreme Value Theory (EVT). An image is identified as belonging to the open set if its probability threshold exceeds a predefined limit.
- The results showed that the model achieved a 99.7% classification accuracy for the closed set and a 94.0% accuracy for open set recognition.

Automatically adding Vietnamese diacritics using machine learning methods — April 2024 - June 2024
Final project of machine learning course (team of 2 members) — *[Link]*

- Data preprocessing involves cleaning (removing unwanted characters and punctuation), sentence segmentation, normalization (converting accented characters and removing invalid characters), and storing the processed data in suitable structures
- Utilized Hidden Markov Model (HMM) for punctuation prediction, applied Conditional Random Fields (CRF) for sequential labeling, and leveraged Long Short-Term Memory (LSTM) networks for context-based prediction, comparing machine learning and deep learning approaches
- Evaluation results show that the LSTM model outperforms HMM (76.85%) and CRF (67.52%) with 90% accuracy on the test set.

Leadership & Activities

Programming Lab, Industrial university of Ho Chi Minh city

- Co-leader of IUH Vung Tau 2024 codecamp of the school's Informatics Olympic team — November 2024
- Seminar on graph knowledge in competitive programming for students in lab like DFS, BFS, shortest path, minimum spanning tree, joints and bridges — May 2023
- Mentor of the club's first year c++ programming course — October 2022

Competitive Programming

- Honors PROCON Vietnam Competitive Programming Competition 2024 — Certificate
- Top 500 Meta Hacker Cup 2024 Qualification Round 2 — Certificate
- Codeforces Expert (Rating 1613) — Profile

Skills & Interests

Machine Learning/AI Frameworks: Pytorch, Keras, Scikit-learn, OpenCV
Data Science: Pandas, NumPy, Matplotlib, Seaborn, Plotly
Version Control: Git, GitHub
Databases: MySQL, MongoDB
APIs & Web Services: Django Rest Framework, FastAPI
Crawl data: Selenium, BeautifulSoup, Requests
Laboratory: Programing Lab, Data Innovation Lab
Interests: Reading, playing chess, swimming, walking