Tuan Nguyen Van Anh

(+84)972865664
nvatuan3@gmail.com
https://tuanio.github.io/

Work Experience

May 2021 – Aug 2021 — **WeAi - EduplaX**, Data Engineer Intern.
- Study Data Engineer concepts, build a small tool for internal use, and do data preprocessing and data ingesting steps.

Aug 2021 – Present — **WeAi - EduplaX**, Machine Learning Researcher.
- Successfully apply the research's results to build a new feature for the product.
- Research Computerized Adaptive Testing, Automatic Speech Recognition.

Education

2019 – Present — **Student, Industrial University of Ho Chi Minh City (IUH)**, Faculty of Information of Technology, Data Science Department - GPA: 3.35/4.
Thesis title: *A Semi-Supervised Learning approach for Automatic Pronunciation Error Detection.* (Progress: 100%)
- Supervisor: High-Level Expert, Ph.D Linh Nguyen.

Research Publications

Conference Proceedings

1. **Nguyen, V. A. T.***, Nguyen, T. T. H., Nguyen, T. D., Pham, M. T., Dao, D. T., & Dang, T. P. (2022). A novel approach for Vietnamese Speech Recognition using Conformer. In *Future Data and Security Engineering. Big Data, Security and Privacy, Smart City and Industry 4.0 Applications* (pp. 723–730). Singapore. Retrieved from https://doi.org/10.1007/978-981-19-8069-5_53

2. **Nguyen, V. A. T.***, Pham, H. T. T., Pham, T. S., & Dang, T. P. (2022). Vietnamese voice recognition using deep learning model. In *Young Science Conference - Industrial University of Ho Chi Minh City (YSC - IUH 2022)* (pp. 231–239). Ho Chi Minh city, Vietnam. Retrieved from https://bit.ly/3FoJZP3

3. Trinh, T. B. B.*, Dinh, H. H. D., Phan, L. H. V., Tran, N. B., Nguyen, T. T. H., **Nguyen, V. A. T.***, … Nguyen, C. K. (2021). Using machine learning to detect abnormal in cyber security. In *Young Science Conference - Industrial University of Ho Chi Minh City (YSC - IUH 2021)* (pp. 221–231). Ho Chi Minh city, Vietnam. Retrieved from https://bit.ly/3SNYTTt

4. **Nguyen, V. A. T.***, Ha, B. A., Trinh, T. B. B., Nguyen, T. T. H., Pham, T. S., Pham, H. T. T., … Nguyen, T. A. N. (2020). Applying machine learning to determine the level of air pollution basing on historical data. In *Young Science Conference - Industrial University of Ho Chi Minh City (YSC - IUH 2020)* (pp. 256–256). Ho Chi Minh city, Vietnam. Retrieved from https://bit.ly/3yvyPEt

In Press

1. **Nguyen, V. A. T.***, Trinh, T. B. B., Nguyen, T. T. H., Phan, L. H. V., Tran, N. B., Dinh, H. H. D., … Nguyen, C. K. (2022). *Using Bayesian and Neyman-Pearson hypothesis testing for Autoencoder to detect anomalies in network security*. (*Accepted*, to be published in May 2023 in Journal of Science and Technology - Industrial University of Ho Chi Minh City (JST - IUH 2022)), Ho Chi Minh city, Vietnam.

Skills

Languages	English (Strong reading, listening and Intermediate writing, speaking).
Coding	Python (PyTorch, Tensorflow, Numpy), C/C++, R, LaTeX.
Databases	SQL, PostgreSQL, SQLite, MongoDB.
Web Dev	HTML, CSS, JavaScript, ReactJS, Flask, Django.
Misc.	Academic research, teaching, teaching assistant, training, consultation.

Research Experience

Nov 2021 – Present

Automatic Speech Recognition (ASR).

- **Topic detail**: Research how a computer precisely recognizes what a human says. Languages are Vietnamese and English.
- **Skills gained**: Deeply understand the pipeline of Hybrid ASR Systems and End-to-end ASR Systems. Successfully applied state-of-the-art Deep Learning ASR Architecture for English dataset on Vietnamese dataset (Accepted paper). Build a toolkit for experiment End-to-end ASR System: See my GitHub.

Nov 2020 – Jan 2022

Anomaly Detection.

- **Topic detail**: Research how to build Intrusion Detection System (IDS) for Network Security. Experiment on *NSL-KDD* Dataset.
- **Skills gained**: Understand the pipeline of IDS, and know how to use hypothesis testing for the Unsupervised Learning model and Supervised Learning model for IDS (Both papers have been accepted). See my GitHub.

Research Interest

My current research focuses mainly on Deep Learning techniques to solve End-to-end Automatic Speech Recognition (ASR). i.e., I try to make the computer system exactly recognize what humans say. The languages that I research are both Vietnamese and English. Till now, I have successfully applied state-of-the-art Deep Learning architecture on ASR with English datasets to the Vietnamese datasets. In the near future, I want to research both Natural Language Processing and Speech Processing.

Awards and Achievements

2022 **Third Prize**, Euréka at IUH.

2021 **Top 20**, startup contest Inno Greenlife IUH.

Second Prize, TDMU - Entropy Data Analytics contest.

2020 **Consolation Prize**, Olympic Informatics for Vietnamese students (specialize board).

2019 **Consolation Prize**, ACM/ICPC Asia region.

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