Thao Nguyen

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EDUCATION

University of Illinois Urbana-Champaign (UIUC)

Ph.D. in Computer Science   *Aug. 2023 – Present*
Advisor: Prof. Heng Ji

Hanoi University of Science and Technology (HUST)   Hanoi, Vietnam

B.S. in Biomedical Engineering   *Aug. 2016 – Dec. 2020*
CPA: 3.44/4

EXPERIENCE

BLENDER Lab   UIUC

Research Assistant   *2023 – Present*

- Design and synthesize molecules for Organic Photovoltaics Device
- Build foundation model for molecular representation

VinUni-Illinois Smart Health Center - VISHC   VinUniversity

Research Assistant   *2022 – 2023*

- Collect an ECG dataset for Vietnamese
- Build classification models for 12 prevalent cardiovascular diseases using 3-lead ECG signals

Department of Medical Image Processing   VinBigdata Institute

Intern   *2020 – 2021*

- Develop a pipeline to label medical images using data sourced from EHRs
- Chest X-ray images processing

EEG and Rehabilitation Laboratory   HUST

Undergraduate Research Assistant   *2018 – 2020*

- Biomedical signal processing

RESEARCH PROJECTS

3. **Designing and synthesizing molecules for Organic Photovoltaics Device** – *BLENDER Lab*
   Descriptions: Conduct literature mining to gather data on OPV device architectures and investigate the correlation between molecular structure and properties. Our objective is to design and synthesize molecules tailored for OPV devices, enhancing their lifetime and efficiency.

2. **ECGs classification for cardiovascular diseases diagnostics on mobile devices** – *VISHC*
   Descriptions: Collect 3-lead ECG dataset of Vietnamese people, develop a high-accuracy classification model for diagnosing 12 common cardiovascular diseases, and integrate it into a mobile application for convenient access and usage.

1. **Building Chest X-ray dataset and deep learning classifier exclusively for Vietnamese** – *VinBigdata Institute*
   Descriptions: Gather Chest X-ray images and corresponding diagnosis reports from the EHR system. Develop a pipeline to automatically label Chest X-ray images based on diagnosis information. Build a robust system capable of accurately classifying Chest X-ray images according to specific regions of pathology identified in the images.

Publications

5. **Thao Nguyen**, Hieu H. Pham, Khiem H. Le, Anh Tu Nguyen, Tien Thanh, Cuong Do. Detecting COVID-19 from digitized ECG printouts using 1D convolutional neural networks. In *Plos One*, 2023.

4. **Thao Nguyen**, Anh Tu Nguyen, Khiem H. Le, Hieu H. Pham, Cuong Do. A novel deep learning-based approach for sleep apnea detection using single-lead ECG signals. In *APSIPA ASC - 2022*, 2022.

3. **Thao Nguyen**, Tam M. Vo, Thang V. Nguyen, Hieu H. Pham, Ha Q. Nguyen. Learning to diagnose common thorax diseases on chest radiographs from radiology reports in Vietnamese. In *Plos One*, 2022.

2. Khiem H. Le, Hieu H. Pham, **Thao Nguyen**, Tu A. Nguyen, Tien N. Thanh, Cuong D. Do. LightX3ECG: A Lightweight and eXplainable Deep Learning System for 3-lead Electrocardiogram Classification. In *Biomedical Signal Processing and Control*.

1. Khiem H. Le, Hieu H. Pham, **Thao Nguyen**, Tu A. Nguyen, Cuong D. Do. Enhancing deep learning based 3-lead ECG classification with heartbeat counting and demographic data integration. In *IECBES 2022*.

References

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