Nguyen Le Quoc Bao

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Education

Le Hong Phong High School for The Gifted 2021-2024
English-specialized class *GPA: 9.4 (10th grade), 9.5 (11th grade), 9.7 (12th grade)*

Self-study and additional learning:

Khan Academy: Multivariable Calculus *(completed)*, Calculus AB *(completed)*, Calculus BC *(completed)*, Linear Algebra *(completed)*, Statistics (50% completed).
CoTAI: AI4All → Python4AI → Math4AI → ML4AI → DL4AI.
BigOCoding: Data structures and algorithms
- Level 1: Sorting, DFS, BFS, Dijkstra, Heap, Greedy, DSU, etc *(completed)*
- Level 2: Backtracking, Modular arithmetic, Prime numbers, Tarjan, etc. *(completed)*
- Level 3: Fenwick tree, Segment tree, Catalan, Hash table, Trie, Deque, etc. *(completed)*
- Level 4: Probabilities, Geometry, Game Theory, Dynamic Programming, etc. *(not completed)*.

MindX: Website programming
- Advanced course: HTML, CSS, JavaScript, API, basic database *(1st place final project)*
- Intensive course: Firebase, Responsive, advanced database, deployment *(1st place final project)*

Achievements and Honors

- Team leader of 2nd project at Regeneron International Science and Engineering Fair (ISEF). *(2023-2024)*
- Team leader of 1st project at National-level Vietnam Science & Engineering Fair (VISEF). *(2023-2024)*
- 3rd place in a City-level Computer Science specialized competition (competitive programming) *(2024)*
- Team leader of 1st Programmer Award & 1st User Experience Award at a nationwide Hackathon. *(2023)*
- Top 10 team at the final round of the AIC-AI Challenge. *(2023)*
- 2nd place in a city-level English specialized competition. *(2021)*

Programming Projects

VasculAR: Medical-aided software for 3D cardiovascular reconstruction via Deep Learning.
- ***Technologies***: Cython, python, C, C#, Unity, PyTorch, TensorFlow, Firebase.
- ***Responsibilities***:
  Data annotations (both segmentation and pathologies).
  Design, implement, and experiment novel Deep Learning with SOTA methods.
  Implement, optimize and evaluate the 3D reconstruction algorithm.
  Research and implement the algorithm for 3D volume computation.
  Develop 2 main user interfaces and partly involve in VR development.
  Gather practical feedback from experts in clinical settings.
  Design posters and write/publish research papers.

TedUp: Website system for assisting students with ill mental health.
- ***Technologies***: Flask/Django, Python, MySQL, Streamlit. Bootstrap.
- ***Responsibilities***:
  Data gathering and data preprocessing
  Experiment RNN, BiLSTM and BERT for 12 emotional classification,
  Develop hybrid recommender system (neighborhood collaborative filtering & content-based filtering)
  Devise Q-value formula and Q-system for numerically evaluating user's mental health quality
  Design and develop a clean minimal and friendly user interface.

Skin Disease Detector: Website employing transfer learning for 7 skin lesion classification.
- ***Technologies***: Flask/Django, Python, Bootstrap.

Research Experience

Paper 1: Vietnamese Heart Segmentation and Cardiovascular Diseases Data | → *Access paper* |
Paper 2: Volume Computation of 3D Reconstructed Models from Volumetric Data | → *Access paper* |
Paper 3: RotCAtt-TransUNet++: Novel Deep Neural Network for Sophisticated Cardiac Segmentation
Version 1 (6 pages): Submission to MAPR Conference 2024. | → *Access paper* |
Version 2 (11 pages): Submission to IEEE Journal 2024. | → *Access paper* |
Paper 4: Currently in process, aiming for SOICT in September 2024.

Experience

Organization: Center of Talents in AI (CoTAI). | *2022-2023*
Work: Teaching Assistant for Python4AI class.

Organization: Le Hong Phong Art of Japan (AOJ). | *2021-2022*
Role: Technical staff, graphic designer.
Notable work: Develop the website for a game challenge campaign.

Organization: Le Hong Phong basketball team. | *2021-2024*
Role: Technical head, team leader, graphic designer.
Notable work: Develop a platform for player's and team's standings & stats.

Skills

PROGRAMMING

Languages: Python, C/C++/C#, Java (Android), JavaScript.
Tools: Git/Github, Ubuntu, Docker, Unity, Flask, WordPress, LaTeX, HackMD.
Frameworks: TensorFlow, PyTorch, OpenGL, Tkinter, Streamlit, Pandas, Matplotlib, Node.js

COMMUNICATION

English: Proficient in cummunication (C1 Level).
Japanese: Basic in communication (A2 level).

GRAPHIC DESIGN

UI/UX: Adobe XD, Figma.
2D graphic: Adobe Photoshop, Adobe Illustrator.
Video Editing: Adobe After Effect, Adobe Preimier.