NGUYEN CONG HIEU

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WORK EXPERIENCE

AI Engineer Intern   **Sep 2024 – Present**
EWAY

- Developed identity document recognition and OCR systems for eKYC products.
- Enhanced LLM prompt design and implemented logic/UI for the Thai Am horoscope app.

Research Student   **Oct 2023 – Present**
AI Labs, VNU-UET

- Researched **Spiking Neural Networks (SNNs)** for vision-based tactile sensing using event cameras.
- Explored the **Kolmogorov–Arnold Network (KAN)** for function approximation and computer vision.

PROJECTS

EKYC System
AI Engineer, AI Researcher

- **Description:** An AI-powered (eKYC) system tailored for identity verification in Laos and Myanmar, supporting various document types and biometric checks.
- **Team size:** 10
- **Contribution:**
    - Classified ID card images using image feature matching techniques.
    - Trained models for automatic annotation and detection of various document types and information fields.
    - Extracted structured information from document images to support identity verification workflows.
    - Researched and developed a custom alignment algorithm based on segmentation.
- **Technology:** Python, YOLO, PaddleOCR, OpenCV, PyTorch, LightGlue

Thai Am
AI Engineer, Mobile Developer

- **Description:** A mobile app that interprets Vietnamese horoscopes using a Large Language Model (LLM) for personalized astrological insights.
- **Team size:** 7
- **Contribution:**
    - Researched and refined prompt engineering techniques to enhance the personalization and user-friendliness of horoscope interpretations.
    - Participated in the development of UI components and application logic for new product features.
- **Technology:** Flutter, Firebase, Python, OpenAI API

Event-based Tactile Sensor
AI Engineer, AI Researcher

- **Description:** A real-time tactile sensing system using neuromorphic event cameras and Spiking Neural Networks (SNNs) to mimic biological touch perception.
- **Team size:** 3
- **Contribution:**
    - Designed and assembled a tactile sensor module using event cameras.
    - Developed a data acquisition and preprocessing pipeline for tactile sensor input.
    - Investigated and compared event-based encoding methods to optimize signal representation.

– Designed a spike-based neural architecture and evaluated robustness on tactile classification tasks.
– Built a live inference server to support real-time interaction.
- **Technology:** PyTorch Lightning, Hydra, snntorch, dv-processing, Socket.IO, Flask

Gender Classification from Facial Images
AI Researcher, AI Engineer

- **Description:** A gender classification system from facial images using both traditional machine learning and deep learning approaches.
- **Team size:** 1
- **Contribution:**
  – Conducted research on data bias and cultural variability in facial features for robust gender classification.
  – Implemented feature-based ML models using LBP, HOG, and color histograms combined with classifiers like SVM, Random Forest, and Gradient Boosting.
  – Built CNN-based deep learning models and applied transfer learning using MobileNet and ResNet architectures.
  – Applied data augmentation and preprocessing techniques to improve model robustness to noise, lighting, and occlusion.
  – Evaluated model performance using accuracy, precision, recall, F1-score, and ROC-AUC metrics.
- **Technology:** Python, OpenCV, Scikit-learn, PyTorch, Matplotlib, NumPy

EDUCATION

University of Engineering and Technology, Vietnam National University   2022 - 2025
Major: Artificial Intelligence

- **GPA**: 3.7/4.0
- Selected as one of 28 candidates from 174 students to join the **Advanced Program in Artificial Intelligence**.
- Graduated in 3 years instead of 4.

SKILLS

- **Programming Languages:** Python, Java, C/C++, SQL
- **Machine Learning:** Deep Learning (CNNs, RNNs, Transformers), Transfer Learning, Fine-tuning LLMs & Diffusion Models, Classical ML (SVM, KNN)
- **ML Frameworks:** PyTorch, PyTorch Lightning, Hugging Face, Scikit-learn, OpenCV
- **Data Analysis:** Pandas, NumPy, Matplotlib, Seaborn
- **Computer Vision:** Image Classification, Object Detection, Semantic Segmentation
- **DevOps & Tools:** Git, GitHub, Docker, MySQL, Hydra
- **Web & Mobile:** FastAPI, Flask, Flutter
- **Mathematics:** Linear Algebra, Calculus, Probability, Statistics
- **Languages:** English (Proficient), Vietnamese (Native)

ACTIVITIES & ADWARDS

- Received the **Encouragement Scholarship** for outstanding academic performance across all 5 semesters.
- Recognized as an **Outstanding Student** for the 2022–2023 academic year and a **Good Student** for 2023–2024.
- Graduation Thesis (**A+**): Vision-based Tactile Sensing using Spiking Neural Networks