Tran Van Tuan Phong

BACKEND DEVELOPER

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EDUCATION

School of Engineering and Technology, Hue University — **Hue, Vietnam**
Engineering Degree in Data Science and Artificial Intelligence — *Sep 2020 - June 2025*

- Current GPA: 3.43/4.0
- Related Courses: Python, MachineLearning, DeepLearning, ComputerVision, NLP, BigData

KEY ACHIEVEMENTS

Third Prize – Science and Technology Award for University Students 2023 — **Hue, Vietnam**
Organized by the Vietnam Fund for Technical Innovation (VIFOTEC) — *November 2023*
Awarded for further developing the smart lighting system project, demonstrating innovation, practical application, and technical excellence on a national level.

Science and Technology Innovation Contest 2021 — **Hue, Vietnam**
2021
Recognized for the project "Designing a Smart Lighting System in Hue" which involved developing an IoT-based system using Firebase and ThingSpeak to enable real-time monitoring and automation.

PROFESSIONAL EXPERIENCE

RegenAI Solutions Co., Ltd. — **Hue, Vietnam**
Position: Backend/AI Engineer — *July 2024 - May 2025*

Research & Development

- Transitioned to Backend-AI development using Python and AWS, where I developed and enhanced the DayCent model to simulate carbon, nitrogen, and nutrient cycles.
- Developed APIs to collect soil and weather data, supporting GHG calculations.
- Further developed the DayCent Client, enhancing model functionality and gaining hands-on experience with various AWS services (Lambda, S3, ECR, etc.).

Project:

- Simulation of Corn Systems: **Yield**, **Soil Carbon**, and **GHG Emissions** across Vietnam
  - Built and deployed a serverless Soil Data API using GEE and AWS Lambda, processing 5,000+ locations in under 6 minutes.
  - Converted soil, weather, and management data into JSON inputs for DayCent model simulations.
- **Calibration** and **Simulation** of **GHG Emissions** and **Reductions** in Gujarat Cropping Systems
  - Designed and implemented a parameter calibration workflow using PEST to improve GHG and biomass predictions.
  - Performed sensitivity analysis on 38+ crop parameters to identify key calibration targets.
  - Contributed to regional GHG scenario analysis across 50 sites and 48 management combinations.

Technical Skills: Expertise in **Python**, **FastAPI**, **Pydantic**, **Google Earth Engine** (gee), and **AWS services** (Lambda, S3, ECR), **Git**, with experience in data processing using libraries (like numpy, pandas, etc.).
Soft Skills: Strong communication, teamwork, problem-solving, and leadership abilities.

Brycen Vietnam Co., Ltd. — **Hue, Vietnam**
Position: Intern at AI R&D — *March 2024 - June 2024*

- Assisted in a Computer Vision project for OCR-based recognition of design blueprints, using tools like PaddleOCR, KerasOCR, and EasyOCR.
- Improved OCR accuracy using image pre-processing and Super Resolution techniques.
- Built basic UI components using PyQt6.

Technical Skills: Expertise in **Python**, **PaddleOCR**, **Keras**, **PyQt6**.
Soft Skills: Teamwork, problem-solving, communication, presentation.

PERSONAL PROJECT

● **Final Year Project: Federated Learning for Handwritten Digit Recognition** — **Hue, Vietnam** — *October 2024 - December 2025*

Overview: Designed and developed a federated learning system to recognize handwritten digits using the MNIST dataset. The system simulates decentralized model training across multiple clients, manages model versions, and provides real-time inference via a REST API.

Project Github: https://github.com/tvtp11052002/federated-learning

Key Achievements:

- Built a multi-phase federated learning pipeline: ***Initial training*** with 2 clients ➔ ***Additional training*** with 3 clients ➔ ***Evaluation*** using a test-only client.
- Achieved over **90% accuracy** after additional training phase.
- Deployed a **Flask-based REST API** that supports digit recognition via image upload or URL, including automatic background removal.
- Enabled seamless model comparison and performance tracking through custom evaluation logic.

Technical Skills: Python, **TensorFlow & Keras**, **Flower** (federated learning), **Flask**, **Docker** , **Git**, **Rembg** (image preprocessing), shell scripting, model evaluation & monitoring.

Soft Skills: Team collaboration, technical communication, problem-solving, version control in team environments (Git), task delegation, time management, and iterative development under academic deadlines**.**

● **Text Emotion Classification System Using NLP Techniques** — **Hue, Vietnam** — *2024*

Overview: Built an emotion classification system to detect five emotions (joy, sadness, anger, fear, neutral) from user-generated texts using both traditional machine learning and deep learning techniques. The project involved data preprocessing, feature extraction (TF-IDF, Word2Vec), and training/evaluation of various models including fine-tuned BERT on a curated dataset of ~11,000 samples.

Project Github: https://github.com/tvtp11052002/text-emotion-NLP

Key Achievements:

- Fine-tuned BERT model achieved 82.41% accuracy, outperforming all other models.
- Trained GRU model with pretrained FastText embeddings, reaching 71.77% accuracy.
- Compared and evaluated multiple models: Naïve Bayes, SVM, Logistic Regression, GRU, BERT.
- Applied NLP pipeline: tokenization, lemmatization, stopword removal, and TF-IDF vectorization.

Technical Skills: Python, **NLP** (NLTK, spaCy), **Scikit-learn**, **TensorFlow**, **Keras**, **HuggingFace Transformers**, **Word2Vec**, **BERT**, Google Colab (GPU), **Pandas**, **Matplotlib**

Soft Skills: Team collaboration, technical communication, problem-solving, version control in team environments (Git), task delegation, time management, and iterative development under academic deadlines**.**

ADDITIONAL INFORMATION

English proficiency: B1 Certificate

Interests: Sports (Basketball, Badminton), Volunteering & Community Activities