

LE TUAN



E-mail: tuan.le@utc.fr
WWW: letuan.org
Born on March 1st, 1998
Nationality: Vietnamese

About me

I am a Ph.D. student in applied machine learning. My expertise in this field motivates me to solve practical and innovative challenges such as anomaly detection and computer vision.

Education

2024: Ph.D. student at Roberval Laboratory, University of Technology of Compiègne, France
2021: Engineer Degree in Electrical and Electronics, University of Science and Technology - Da Nang, Vietnam

Professional Experience

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| 2021 / 2024 | <p>Ph.D. student at Roberval Laboratory, University of Technology of Compiègne, Sorbonne Alliance University, France</p> <ul style="list-style-type: none">My research focuses on applying machine learning to develop anomaly detection models in Industry 4.0.<ul style="list-style-type: none">✓ Identify an engine malfunction through vibration and temperature sensors.✓ Identify a defective product through images.✓ Identify an issue in the internal combustion engine control system. |
| 2021 | <p>Electrical Engineer at VATEC Energy Engineering Consulting Co. Ltd.</p> <ul style="list-style-type: none">Assessed wind resources for the central region of Vietnam. |
| 2020 | <p>Technician Internship at National Power Control Center, Da Nang, Vietnam</p> <ul style="list-style-type: none">Optimized electricity production to meet the demand in the central region. |
| 2019 | <p>Technician Internship at Da-Nhim Hydroelectric Power Plant (240 MW), Vietnam</p> <ul style="list-style-type: none">Monitored electrical generator operations. |
| 2018 | <p>Laborer Internship at Electrical Laboratory, University of Science and Technology - Da Nang, Vietnam</p> <ul style="list-style-type: none">Assembled, configured, and maintained electrical equipment. |

Skills

Programming:

- Pascal, C, C++, Python, Matlab, OOP, Shell

Information Systems:

- Database: SQL, MySQL administration and optimization
- Artificial Intelligence: Deep Learning, Machine Learning, Clustering, Classification

Power Systems:

- Simulation of electrical systems: Matlab, Python, ETAP, PowerFactory - DIgSILENT
- Economic and technical system optimization: Python, Matlab
- Power System Analysis (Python)

Others:

- Project Management, Quality Management

Projects and Competences

- Identify a defective product through images.
- Identify anomalies in the electric motor based on sensor-collected data (Unsupervised learning for multivariate time series).
- Identify unqualified fuel tanks through thermal imaging (Anomaly detection and localization for images).

- Simulation and optimization of electricity generation capacity in a 500 kV power system in Vietnam (PyPSA: Python for Power system analysis).

List of Publications

- Tuan LE, Hai-Canh VU, Vu-Linh NGUYEN, Amelie PONCHET-DURUPT, Nassim BOUDAUD, Zohra CHERFI-BOULANGER, Boosting Anomaly Detection and Localization via Contextual Synthetic Anomalies. Under preparation.
- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAUD, Zohra CHERFI-BOULANGE, Thao NGUYEN-TRANG, 2024. Unsupervised detecting anomalies in multivariate time series by Robust Convolutional LSTM Encoder-Decoder (RCLED). Neurocomputing Journal, DOI: <https://doi.org/10.1016/j.neucom.2024.127791>
- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAUD, Zohra CHERFI-BOULANGE, 2023. Forecasting product quality using peephole long short-term memory. CIGI Qualita MOSIM 2023, DOI: [10.60662/8gn5-5575](https://doi.org/10.60662/8gn5-5575)
- Duong, M. Q., Nguyen, H. H., Le, T., & Mussetta, M. (2019, June). New planning for the 500kv Vietnamese grid with high penetration of renewable energy sources. In 2019 IEEE Milan PowerTech (pp. 1-6). IEEE. DOI: [10.1109/PTC.2019.8810879](https://doi.org/10.1109/PTC.2019.8810879)

List of Other Publications

- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAUD, Zohra CHERFI-BOULANGER, 2023. Explainable Artificial Intelligence (XAI) for non-conforming product detection: an application to fuel tank manufacturing. The 12th IMA International Conference on Modelling in Industrial Maintenance and Reliability (MIMAR).
- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAUD, Zohra CHERFI-BOULANGER, 2022. A deep learning approach for control chart patterns (CCPs) Prediction. The 32nd European Safety and Reliability Conference (ESREL 2022).

Languages

- Vietnamese: Native
- English: B2
- French: A2

Interests

- Participation in high school football competitions (second division) and university football team members.
- Participating in running competitions in Paris.