# LE TUAN

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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

**2021 – 2024 (expected): Ph.D. student at Roberval Laboratory, University of Technology of Compiègne, France**
**2016 – 2021: Engineer Degree in Electrical and Electronics, University of Science and Technology - Da Nang, Vietnam**

## Professional Experience

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|---|---|
| 2021 – 2024 | Ph.D. student at **Roberval Laboratory, University of Technology of Compiègne, Sorbonne Alliance University**, France<br>▪ My research focuses on applying machine learning to develop anomaly detection models in Industry 4.0.<br> ✓ Identify an engine malfunction through vibration and temperature sensors.<br> ✓ Identify a defective product through images.<br> ✓ Identify an issue in the internal combustion engine control system. |
| 2021 | Electrical Engineer at **VATEC Energy Engineering Consulting Co. Ltd**.<br>▪ Assessed wind resources for the central region of Vietnam. |
| 2020 | Technician Internship at **National Power Control Center**, Da Nang, Vietnam<br>▪ Optimized electricity production to meet the demand in the central region. |
| 2019 | Technician Internship at **Da-Nhim Hydroelectric Power Plant (240 MW)**, Vietnam<br>▪ Monitored electrical generator operations. |
| 2018 | Laborer Internship at **Electrical Laboratory**, University of Science and Technology - Da Nang, Vietnam<br>▪ 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 BOUDAOUD, Zohra CHERFI-BOULANGER, Boosting Anomaly Detection and Localization via Contextual Synthetic Anomalies. Under preparation.

- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAOUD, 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, Code: https://github.com/nuatel/RCLED.git

- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAOUD, Zohra CHERFI-BOULANGE, 2023. Forecasting product quality using peephole long short-term memory. CIGI Qualita MOSIM 2023, DOI: 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

## List of Other Publications

- Tuan LE, Hai-Canh VU, Amelie PONCHET-DURUPT, Nassim BOUDAOUD, 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 BOUDAOUD, 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.