








# Duong NGUYEN

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## Profile

I am a *Machine Learning (Deep Learning)* practitioner. My research interests focus on *time series modelling and analysis*, especially on stochastic, noisy and irregularly sampled data modelling.

I am *independent and good at planning*. The experience of participating in several projects in different fields and countries has helped me develop *critical thinking skills* and the ability to *quickly adapt* to different work environments.

## Skills

Time series modelling and analysis, Signal processing, Machine learning, Deep learning, AI, Anomaly detection, NLP, Dynamical systems.

**Programming languages:** Python (6 years of experience), SQL.

**Tools:** Pytorch, Tensorflow, Scikit-learn, Git.

**OS:** Linux.

## Languages

English: fluent,

French: advanced,

Vietnamese: mother tongue.

## Education

**Ph.D., IMT Atlantique** 2020

Variational Deep Learning for Time Series Modelling and Analysis.

- 9 first-author publications,
- 6 conference presentations,
- >60 citations (2019-now).

**M.Sc., University of Rennes 1** 2017

Signal and Image Processing.

**Summa cum laude.**

**Dipl. Ing., Télécom Bretagne** 2017

Ingénieur Généraliste.

Specialisation: Machine learning.

## Research and Projects

Since Oct'17 **Maritime surveillance using AIS data**

- Create a multitask deep learning model for maritime surveillance using AIS data.
- Handle massive, noisy and irregularly sampled data.
- Propose a state-of-the-art anomaly detection model for AIS data.
- *One company has signed a contract to exploit the model.*

**Skills:** Python, Tensorflow, building models from scratch, data cleaning.

Since Jul'18 **Learning dynamical systems from noisy and partial observations**

- Combine data assimilation and machine learning to handle the problems of noisy and partial observation in learning dynamical systems.
- Propose a new framework for learning stochastic and chaotic dynamical systems.

**Skills:** Python, PyTorch, benchmarking, signal processing, differential equations.

Since Sep'18 **Fish detection**

- Collaborator of MERIDIAN (a Canadian multi-institutional consortium of ocean researchers, computer and data management professionals).
- Create a fish detectors from passive acoustic data using CNN.

**Skills:** Python, PyTorch, working in a multidisciplinary environment, problem solving.

## Professional Experience and Activities

Feb-Mar'20 **CLS (Collecte Localisation Satellites)**

France

**Applied AI Scientist**

- Worked with AIS experts at CLS to evaluate my research prototype—*GeoTrackNet* on real-life data: tested the limits of the model, explained the results.
- Discussed with engineers at CLS to integrate *GeoTrackNet* into CLS's big data platform MAS (Maritime Awareness System): how to run the model in a *distributed system* and in *real-time*.

Sep-Nov'19 **Dalhousie Institute for Big Data Analytics**

Canada

**Visiting graduate student**

- Created a deep learning model to detect sablefish from maritime passive acoustic data.
- The detector is *under consideration for being used in real-life* by Canadian marine biologists.

Jun'19 **University of Washington**

US

**Visiting graduate student**

- Established the collaboration between the University of Washington College of Engineering and IMT Atlantique.

Sep-Oct'18 **Dalhousie Institute for Big Data Analytics**

Canada

**Visiting graduate student**

- Created a deep learning model to detect abnormal events in acoustic surveillance using Recurrent neural networks with stochastic layers.

Mar-Sep'17 **CLS (Collecte Localisation Satellites)**

France

**Engineering intern**

- Made statistic reports and improved the software that combines AIS and SAR data for maritime traffic surveillance.
- Finished the task 1.5 months ahead of schedule with excellent results.

## Extracurricular Activities

May-Dec'18 **Translator**

Translated the *Deep Learning textbook* (Ian Goodfellow, Yoshua Bengio and Aaron Courville) into Vietnamese. Chapter Editor of one chapter.