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**,
• 8 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.
- *Several companies have collaborated with us 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 proof-of-concept methodology for learning meteorological dynamics.

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.