Duong NGUYEN

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Profile

I am a PhD Candidate in the field of **Machine Learning (Deep Learning)**. My research interests focus on **time series analysis**, especially on stochastic, noisy and irregularly sampled data.

During my PhD, I have participated in several projects in different fields and countries, which has helped me develop **critical thinking skills** and the ability to **quickly adapt** to different work environments.

Skills

Time series analysis, Anomaly detection, NLP, Dynamical systems identification.

Programming languages: Python, Matlab.

Libraries: Pytorch, Tensorflow, Scikit-learn.

Languages

English: advanced,

French: advanced,

Vietnamese: mother tongue.

Education

Ph.D., IMT Atlantique 2020 (exp)
Variational Neural Networks for Noisy and Irregularly Sampled Time Series Modeling.
> 10 publications.

M.S., University of Rennes 1 2017
Signal and Image Processing.
Summa cum laude.

Dipl. Ing., IMT Atlantique 2017
Machine Learning.

Professional Experience and Activities

Feb-Mar'20 **CLS (Collecte Localisation Satellites)** France
Visiting fellow
- Worked with AIS experts at CLS to evaluate my research prototype—***GeoTrackNet*** on real-life data.
- Discussed with engineers at CLS to integrate GeoTrackNet into CLS's big data platform MAS (Maritime Awareness System).

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 reaf-life by Canadian marine biologist.

Jun'19 **University of Washington** US
Visiting graduate student
- Established the collaboration between the The University of Washington College of Engineering and IMT Atlantique.
- Attended the Physics informed machine learning workshop.

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 of the fusion of SAR and AIS data for maritime traffic surveillance.
- Improved the software that combines SAR and AIS data for maritime traffic surveillance.
- Finished the task 1.5 months ahead of schedule.

Research and Projects

Since Oct'17 **Maritime surveillance using AIS data**
- Create a multitask deep learning model for maritime surveiallance using AIS data.
- Handle massive, noisy and irregularly sampled data.
- Propose a state-of-the-art anomaly detection model for AIS data.
- The **research prototype** is potentially used by **several companies**.

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.

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.

Publications and Conferences

- 5 first author publications (ICASSP, IEEE DSAA, etc.).
- 2 first author manuscripts under review (IEEE Trans. on Neural Networks and Learning Systems, IEEE Trans. on Intelligent Transportation Systems).
- 5 conference presentations.

Full list: https://scholar.google.com/citations?user=jLtTFrIAAAAJhl=en