



# FOSSE LOÏC

PhD Candidate at Orange Innovation

@ loicfosse65310@gmail.com

@ loic.fosse@orange.com

+33 6 42 18 62 31

Rennes , France

loïc-fosse-7abb711bb

lololo

## STRENGTHS

Team Spirit Hard Worker Sporty  
Motivated Determined Curious

## LEARNING

Programmation:

Python Linux Docker R  
Julia C C++  $\LaTeX$  MatLab

Deep Learning:

PyTorch / PyTorch Lightning  
PyTorch Geometric  
Plotly / Dash  
LabelStudio  
HuggingFace

## LANGUAGES

French: Native

English: TOEIC : 940 (C1/B2)

## HOBBIES

Surf KiteSurf WindSurf  
Ski Touring Snowboard  
Golf : 0.4 index / Hossegor team

## EXPERIENCES

### PhD Candidate | Orange Innovation

Oct 2023 -

Lannion, France

- Study of low rank adaptations for model combination
- Study of Mamba models for long context modelisation

### Question answering from conversations | Orange Innovation

Feb 2023 - Aug 2023

Lannion, France

- State of the art study.
- Study of the dialogical structure and linkage with graph theory.
- Use of generative language models such as Encoders / Decoders (T5, BART).
- Modification of the attention mechanism in T5 type models to integrate the dialogical structure.

### Study of the plausibility of attention mechanism in BERT architecture in NLI task | IRISA

June 2022 - august 2022

Rennes, France

- Study of the state of the art
- Highlighting relations between attention and the geometry of hidden embeddings in BERT transformers for the e-SNLI task
- Development of a method to increase the plausibility of the attention mechanism in the BERT transformer for the e-SNLI task

### Statistical analysis on the BERT/FlauBERT Transformers (NLP) | IRISA

Sept 2021 - July 2022

Rennes, France

- Study of hidden states in transformer-type architectures, pre-trained on French corpora and specialized on binary classification (FLUE/CLS task)
- Writing and submitting a research paper to TALN 2022 (Avignon, France) conference
- Presentation of the paper at the TALN 2022 conference

### Mathematics Tutor for 2<sup>nd</sup> year students | INSA

Sept 2019 - June 2020

Rennes, France

- Corrections of mathematics exercises (Algebra, Analysis, Differential Geometry, Probability)
- Help with exam preparation

## EDUCATION

### Engineer in applied mathematics | INSA

sept 2020 - sept 2023

Rennes, France

- Probability: General probability theory, Markov Chains, Hidden Markov Chains , Continuous time Markov Chains , Stochastic differential equations
- Statistics: linear regression, generalized linear model, logistic regression, time series, data analysis (PCA, MCA, FCA)
- Optimization: Graph theory , Branch and bound algorithm

### Exchange Study (Erasmus) | Abo Akademi

Jan-2022 - May-2022

Turku, Finland

- Deep Learning: optimization algorithms (Adam, AdaGrad, Adaptive learning)
- Machine Learning: Neural Networks (CNN , RNN , FC)
- Text algorithms: Pattern matching, suffix Trees