Jules Rio

PhD student (third year)

- April 15, 1995
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Languages

- **German** ● ● ● ○ ○
  - ✈ Goethe-Institut B2
- **English** ● ● ● ● ●
  - ✈ Cambridge Advanced Grade A (C2 level)
- **French** ● ● ● ● ●
  - ✈ Native speaker

I.T. Skills

- **Python** ● ● ● ● ●
  - ✈ Used daily
- **Matlab** ● ● ● ● ○
  - ✈ Regularly used
- **Latex** ● ● ● ● ○
  - ✈ Regularly used
- **C, C++** ● ● ● ○ ○
  - ✈ Knowledge
- **R** ● ● ○ ○ ○
  - ✈ Basic knowledge
- **SQL** ● ○ ○ ○ ○
  - ✈ Notions

Extra-curricular

- 🎻 Violin
  - ✈ Played for 15 years
- ✈ Kung-Fu
  - ✈ Yellow Belt

Working Experience

Dec. 2018 - Today
PhD : signal processing *Hubert Curien Laboratory (University of Lyon)*
Title : *Analysis of cyclostationary signals based on deep learning methodologies*
- Denoising of periodic signals containing discontinuities
- Using Deep Learning models for denoising the signals (implementation with Tensorflow)
- Researching metohds for improving the consideration of the periodicity and the generalization to various noises in Deep Learning
- Using Matlab for pre-analysis of the real signals
- Financed by the 'Investissements d'Avenir' program operated by the ADEME (IMOTEP project)

Apr. 2018 - Oct. 2018
Last year internship *Sony European Technology Center*
- Used Deep Learning for audio classification, such as in DCASE 2018 Task 5 (Monitoring of domestic activities based on multi-channel acoustics)
- Used Nnabla to implement the neural networks in Python

May. 2017 - Aug. 2017
Internship *Thales Air Systems*
- Data analysis to improve the system of detection of degradations
- Searched Data analysis methods that would be the most usefull for the project

Oct. 2015 - Aug. 2016
Humanitarian association *Recup'Eau Vietnam*
- Worked to help a village in Vietnam by building some new amenities
- Collected fundings and contributed to the on-site building (one month)

Education

Sep. 2015 - Oct. 2018
Engineer's degree *École Centrale de Nantes*
(equivalent to a master's degree)
- Option "**Mathematics and applications**"
  Data Mining, Statistical inference, Regression and Time series
- Option "**Data analysis and applications in signal and image processing**"
  Image Processing, Machine Learning, Statistical data modelling and analyzis, Audio analysis and Information retrieval

Sep. 2013 - Jul. 2015
Student in Classes Préparatoires *Lycée Clemenceau, Nantes*
A 2-year intensive course in mathematics, physics and chemistry, preparing for the national competitive entry examinations for French Schools of Engineering

Jun. 2013
Baccalaureat S
- French equivalent of High School Diploma, with a specialization in Mathematics, Physics and Biology
- Obtained with distinction

Publications

2021
A Wavenet for denoising periodic discontinuous signals
Rio et Al.
European Signal Processing Conference (EUSIPCO) 2020

2021
Leveraging end-to-end denoisers for denoising periodic signals
Rio et Al.
European Signal Processing Conference (EUSIPCO) 2021

Teaching

2019 - 2021 : Télécom Saint-Étienne (L3 and M1 levels)

Mathematics (L3) → Reminders with a focus on probabilities and integration

Discrete signals (L3) → Fourier and Z transforms, LTI, FIR and IIR systems

Random signals (L3) → Autocorrelation, stationarity, white noises

Estimation (M1) → Estimation theory (bias, variance, classic methods)