Julien Hauret
PhD Student

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Areas of interest: **Deep Learning**, **Signal Processing**, **Speech Enhancement**, **Speech Recognition**, **Frugal AI**

Experience

Since December 2021	**PhD student in Machine Learning applied to Acoustics**, *Cnam LMSSC*, Paris, France PhD description Deep learning based bandwidth extension for audio captured with body-conduction microphones. MT180
2022 & 2023	**Teacher assistant**, *École des Ponts Paristech*, Champs-sur-Marne, France Lectures and hands-on sessions of Pascal Monasse's Algorithms and Data Structure teaching unit
2021	**Research Intern**, *French Ministry of the Armed Forces*, Paris, France, Report 6-month internship on Automatic Speech Recognition, investigating the influence of self-supervised training (Contrastive Predictive Coding) of the wav2vec2.0 architecture on CTC loss fine-tuning
2020	**Industrial Partnership**, *United Robotics Group (formerly Softbank robotics)*, Paris, France, Report Development of an Android application on the Pepper's tablet to detect signs of autism spectrum disorder
2019	**Visiting Student Researcher**, *Columbia University*, New-York, USA, Report 4-month internship at the Heffner Biomedical Imaging Lab, machine learning on CT imaging data
2019	**Research project**, *Université Paris-Saclay*, France, Report Crack detection project on roads or walls photographs with pure image processing methods

Education

2020–2021	**MSc MVA (Mathématiques, Vision, Apprentissage)**, *ENS Paris-Saclay*, Gif-sur-Yvette, France Deep learning, Kernel methods, Convex Optimization, Sparsity, Speech/NLP/Image/Audio processing Kaggle competition: 7th/167 - Inpainting project - low resources ASR project - Image compression project Multi-modal Colour Extraction comptetion - DNA sequence classification task - Official transcript
2018–2020	**MSc INTRANET (Signal Processing&Computer Science)**, *ENS Paris-Saclay*, Cachan, France Signal/Image Processing, Automation, Information theory, Digital Electronics, Radio-frequency engineering Laureate of the *Agrégation de Sciences Industrielles option informatique*, 9th/202 - Diploma
2017–2018	**Bachelor in Electrical Engineering**, *ENS Paris-Saclay*, Cachan, France Power engineering, Digital/Analog electronics, Probability, Numerical method, Quantum/Statistical Physics
2015–2017	***Classes Préparatoires aux Grandes Ecoles, PT* (CPGE)** , *Lycée Gustave Eiffel*, Bordeaux, France

Publications

Julien Hauret, Thomas Joubaud, Véronique Zimpfer, Éric Bavu
Configurable EBEN: Extreme Bandwidth Extension Network to enhance body-conduction speech capture
Submitted at IEEE TASLP on 26/01/2023.–paper

Julien Hauret, Thomas Joubaud, Véronique Zimpfer, Éric Bavu
EBEN: Extreme bandwidth extension network applied to speech signals captured with noise-resilient microphones
In Proc. ICASSP 2023.–paper and its project page

Julien Hauret, Éric Bavu, Thomas Joubaud, Véronique Zimpfer
Deep Learning pour l'amélioration de signaux vocaux captés avec des transducteurs intra-auriculaire.
16ème Congrès Français d'Acoustique, CFA2022. Abstract

Miscellaneous

Programming	**Python, Bash, LATEX, C++, Git,** Matlab, Java, C, VHDL, HTML, CSS, JavaScript, Reveal.js
Python Libraries	Pytorch, Hydra, Pytorch Lightning, Numpy, Librosa, Scipy, Scikit-Learn, Plotly, Pandas, Tensorboard, Ray
Languages	**French** (native), **English** (fluent: C1 level at Cambridge Advanced)
Extra-activities	Tennis, Surfing, Soccer, Skiing, Running, Disc Jockey, Paragliding,

References

Éric Bavu	**PhD Supervisor, Full Professor, Cnam, LMSSC**, *eric.bavu@lecnam.net*
Emmanuel Vincent	**Senior Research Scientist at Inria, PhD follow-up committee**, *emmanuel.vincent@inria.fr*
Thomas Rodet	**Head of Electrical Engineering at ENS Paris-Saclay** , *thomas.rodet@ens-paris-saclay.fr*
Elsa Angelini	**Co-director of the Heffner Laboratory at Columbia University**, *e.angelini@imperial.ac.uk*
Sylvie Le Hégarat	**Full Professor, University Paris-Sud Laboratory SATIE**, *sylvie.le-hegarat@u-psud.fr*
Michel Kieffer	**Full Professor, University Paris-Sud Laboratory L2S**, *michel.kieffer@l2s.centralesupelec.fr*