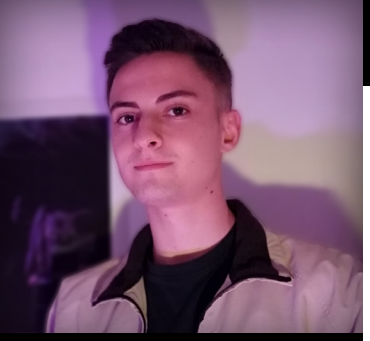

LEMESLE Yoann | 22 years old

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NUM: +33 6 31 94 03 05
NAT: French

SKILLS

PyTorch
Keras
python
Java
C++ R
LaTeX
unity

LANGUAGES

French
English (965/999 TOEIC)

EDUCATION

Paris Dauphine-PSL University | Paris, France **+ ENS Rennes (double diploma)**
2021-2022 (ONGOING)

> Research Master 2 (IASD - Artificial Intelligence, Systems, Data)

Semester 1 : Deep learning (CNNs, ResNets, LSTMs, Project : learning to play Go with CNNs), Data Science Projects : Matrix Factorization, Variational Autoencoders, Adversarial Robustness in CNNs. Advanced Databases, Machine Learning Fundamentals, Optimization for Machine Learning, Knowledge Representation, Planning, and Reasoning.

Semester 2 : *Deep reinforcement learning and applications, Deep learning for image analysis, Foundations of reinforcement learning, Natural language processing, Incremental learning, game theory, and applications, Monte-Carlo search and games.*

École Normale Supérieure (ENS) | Rennes, France **+ Univ. of Rennes 1 (double diploma)**
2019-2021

> Research Master 1 (SIF - Computer Science)
Game Theory & Applications, Bioinformatics, Signal Processing, Compilation, Computer Graphics (Unity & Python), Cloud & Big Data, Information Theory, Research Project, Research Intership...

> Research Bachelor 3 (SIF - Computer Science)
Applied Statistics & Probability, Image Processing, 3D Rendering, Logic, Language Theory, Algorithmics, CyberSecurity, Java, C/C++, Python, Ocaml, Research Internship...

ISTIC, University of Rennes 1 | Rennes, France
2017-2019

> Bachelor 1 & 2 (INFO - Computer Science)
Linear Algebra, Statistics, Probability, Language Theory, Java, Scala, SQL

St-François-Xavier Highschool
2014-2017

> Scientific Highschool Diploma

EXPERIENCE

Inria Bordeaux, FLOWERS TEAM | Distancial
Research Internship | SUMMER 2021 (14 weeks)

This internship led to the writing of a paper with shared first authorship (my internship supervisor Masataka Sawayama and me) that was accepted at ICLR 2022. The project was about developing and evaluating a benchmark test for language-biased vision models based on semantic representations. It was applied on OpenAI's CLIP model and showed how presenting word-added images distorts the image classification by the model across different category levels, an effect that does not depend on the semantic relationship between images and embedded words. This suggests that the semantic word representation in the CLIP visual processing is not shared with the image representation, although the word representation strongly dominates for word-embedded images.

Supervised by Claire Vernade (DEEPMIND UK) | Distancial
Research Project | 2020-21 (8 months)

This research project was about investigating methods of **defense against adversarial attacks on CNNs.** We were especially focused on the **detection of adversarial examples** using **K-Density** on the latent representations of a **ResNet-32 model** and tried to find a new way of **constraining these representations**, which led to the accidental rediscovery of the effects of **logit squeezing and label smoothing** on the adversarial robustness of models: constraining the logits to have a low l2 norm, as well as constraining them to be almost equal, seems to be correlated with an increase in adversarial robustness. This result was already discovered in previous works. The relationship between these constraints, the adversarial robustness of models, and the robustness of detection (how easily can a detection method be bypassed by well-crafted attacks) was further investigated: preliminary results seem to show that these constraints do not increase the robustness of adversarial detection.

CNRS, IRISA, LINKMEDIA TEAM | Rennes, France
Research Internship | Supervisor : Laurent AMSALEG | SUMMER 2020 (8 weeks)

We investigated the **specificities of adversarial attacks on RNNs (distortion metrics, taking into account the non-linearity introduced by input pre-processing and output decoding steps...)** and did a **Pytorch** implementation of the adversarial attack on audio inputs from **[Audio Adversarial Examples: Targeted Attacks on Speech-to-Text Carlini & Wagner, 2018]. The implemented attack is able to compute and add an inaudible noise to any audio of speech in order to fool DeepSpeech2, which will output a target sentence transcription (or «target silence» by outputting no sentence) instead of the initial prediction.**

INTERESTS

VOLUNTEERING : Food solidarity in disadvantaged neighborhoods during the Covid-19 crisis.

ARTS : Graphic design, game development with Unity. **SPORTS :** Weight training, Street Dance (Hip Hop, Popping).