

# Charles Corbière

*Ph.D. Student in Deep Learning  
for Computer Vision*

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📄 <https://chcorbi.github.io>

## Research Interests

Reliability, AI safety, uncertainty estimation, robustness, Bayesian models, domain generalization, out-of-distribution detection, heterogeneous and multi-modal data analysis, applications in computer vision and autonomous driving.

## Education

- 2019–2022 **Ph.D. in Deep Learning for Computer Vision**,  
*Conservatoire National des Arts et Métiers*, Paris, France.  
*Subject: Robust and multi-modal deep learning for autonomous driving.*  
Under the supervision of Prof. Nicolas Thome (CNAM) and Patrick Pérez (valeo.ai).  
I work on the problem of developing efficient tools and reliable uncertainty measures to evaluate and improve the robustness of deep neural networks, including failure prediction, out-of-distribution detection, calibration and robustness to distributional shifts.
- 2016–2017 **M.Sc. in Applied Mathematics**,  
*École Polytechnique, Université Paris-Saclay*, Paris, France.  
Master program "Data Sciences", directed by Prof. Eric Moulines  
Coursework: machine learning, optimization, deep learning, big data analytics, graphical models, statistical learning, computer vision, compressed sensing. Full course list [here](#)
- 2012–2016 **M.Eng. in Computer Science**,  
*Ecole Centrale de Lille*, Lille, France.  
Top 10 french engineering schools program  
○ Major in Software Engineering, Minor in Entrepreneurship  
○ Solid foundations in mathematics and engineering (electronics, embedded systems)
- 2010–2012 **Classe Préparatoire aux Grandes Ecoles**,  
*Lycée du Parc*, Lyon, France.  
Two-year intensive post-secondary program preparation for the nationwide competitive examination to the elite French Grandes Ecoles for scientific studies.

## Publications

- C. Corbière, M. Lafon, N. Thome, M. Cord, and P. Pérez, "Beyond first-order uncertainty estimation with evidential models for open-world recognition," in *ICML Workshop on Uncertainty and Robustness in Deep Learning*, 2021.
- C. Corbière, N. Thome, A. Saporta, T.-H. Vu, M. Cord, and P. Pérez, "Confidence estimation via auxiliary models," in *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2021.
- C. Corbière, N. Thome, A. Bar-Hen, M. Cord, and P. Pérez, "Addressing failure prediction by learning model confidence," in *Advances in Neural Information Processing Systems 32 (NeurIPS)*, pp. 2902–2913, 2019.

C. Corbière, H. Ben-Younes, A. Rame, and C. Ollion, "Leveraging weakly annotated data for fashion image retrieval and label prediction," in *IEEE International Conference on Computer Vision Workshop (ICCVW)*, pp. 2268–2274, 10 2017.

## Professional Experiences

- Jan. 2019 – **Junior Research Scientist**, *valeo.ai*, Paris, France.  
Feb. 2022 Participating in the lab as a CIFRE PhD fellow International research center in AI for automotive applications. Main topics are reliability, domain adaptation, self-supervised learning, multi-sensor and 3D perception.
- Oct. 2017 – **Computer Vision Engineer**, *Preligens*, Paris, France.  
Nov. 2018 Start-up applying deep learning to remote sensing imagery.
- Implemented a semantic segmentation pipeline for numerous and small object detection, from research to integration into production
  - Conducted exploratory research works on semi-supervised and weakly supervised learning
- Apr. –Sept. 2017 **Research Intern**, *Heuritech*, Paris, France.  
Start-up applying deep learning for image recognition in fashion and e-commerce.  
*Subject*: build a learning scheme to improve feature representation for fashion image
- Apr. –Sept. 2016 **Data Consultant Intern**, *Ekimetrics*, Paris, France.  
Data consulting firm specialized in strategy and marketing services.  
Work on econometric model to optimize marketing cost
- March–Aug. 2015 **Logitics & Finance Coordinator**, *Noble Spirits*, Sydney, Australia.  
Importation and distribution of premium spirits and wines in Australia. Processing and analyzing financial data to support executive decision making, operation logistics.

## Various Activities

- 2020–2022 **Teaching Assistant** at Master 2 RDFIA, Sorbonne Université, along with my supervisor Nicolas Thome (60 students). Pratical work on Bayesian modelling.
- 2020 Attended and presented a poster at the **Mediterranean Machine Learning School**
- 2018–2019 **Co-Founder** at La Data en Clair, a blog about ethics in artificial intelligence and data science. <https://ladataenclair.fr>

## Languages

French **Native**                      English **Fluent**                      Spanish **Conversational**

## Software Skills

**Languages** Python, C/C++, Matlab  
**Libraries** pytorch, tensorflow, keras, scikit-learn, open-cv, gdal, numpy, scipy, matplotlib  
**Others** Docker, git, Linux, Mercurial, agile management, SQL, VBA

## Hobbies

- Member of a collective in electronic music, organizing events in France
- Involved in a theatre company
- Football player, former basketball playmaker.