Charles Corbière

📞 +33 621000464 ✉ charles.corbiere@gmail.com 🌐 chcorbi.github.io 🔗 charlescorbiere 🔗 chcorbi

Postdoctoral Researcher in Multimodal AI for Safety-Critical Systems.

EDUCATION

Ph.D. in Deep Learning
2019 – 2022

Conservatoire National des Arts et Métiers — *Paris, France*

- Thesis: *Robust Deep Learning for Autonomous Driving.*
- Supervisors: Prof. Nicolas Thome (Cnam) and Dr. Patrick Pérez (valeo.ai).
- Topics: uncertainty estimation, domain adaptation, robustness to distribution shift.

2 top-tier publications: NeurIPS (>350 cit.), PAMI + 2 workshops publications: ICML, ECCV.

M.Sc. in Data Science
2016 – 2017

École Polytechnique, Université Paris-Saclay — *Paris, France*

- Thesis: *Leveraging Weakly Annotated Data for Fashion Image Retrieval and Label Prediction.*
- Coursework: machine learning, optimization, deep learning, big data analytics, graphical models, statistical learning, computer vision, natural language processing. Full course list here.

1 workshop publication: ICCV (>100 cit.)

M.Eng. in Computer Science
2012 – 2016

École Centrale de Lille — *Lille, France*

- Major in Computer Science: software engineering, database systems, web development.
- Minor in Entrepreneurship: developed a start-up project for rental property management

Classe Préparatoire aux Grandes Ecoles - MPSI/MP
2010 – 2012

Lycée du Parc — *Lyon, France*

Two-year intensive program preparing for nationwide competitive exams to enter French's elite Grandes Ecoles in science and engineering. Coursework: mathematics, physics, chemistry, computer science.

WORK EXPERIENCE

Postdoctoral Researcher
Nov. 2022 – present

École Polytechnique Fédérale de Lausanne (EPFL) — *Lausanne, Switzerland*

Visual Intelligence for Transportation (VITA) Lab, led by Prof. Alexandre Alahi.

- Collaborative project with the NLP Lab to leverage vision-language models for autonomous driving.
- Led a 6-person team to build a real-world dataset for depth estimation from omnidirectional cameras.

1 top-tier publication (CVPR) + 2 on-going submissions to ICCV'25 and IROS'25.

Junior Research Scientist
Jan. 2019 – Feb. 2022

valeo.ai — *Paris, France*

- CIFRE PhD fellow researching on uncertainty, domain adaptation and model robustness.
- Published peer-reviewed papers in top-tier AI conferences and journals.
- Collaborated with internal industrial teams to integrate my research into automotive solutions.

Computer Vision Engineer
Oct. 2017 – Nov. 2018

Safran.AI (ex-Preligens) — *Paris, France*

- Developed and deployed a semantic segmentation pipeline for detecting small and numerous objects in satellite imagery.
- Conducted exploratory research on semi-supervised and weakly supervised learning.

Research Intern Apr. 2017 – Sept. 2017
Heuritech *Paris, France*
Designed a weakly learning framework to improve feature representation for fashion and e-commerce images.

Publications

C. Corbière*, S. Montariol*, S. Roburin*, A. Bosselut, and A. Alahi, "Retrieval-based interleaved visual chain-of-thought in real-world driving scenarios," 2025. *Under submission to ICCV*.

J. Endres, O. Hahn, **C. Corbière**, S. Schaub-Meyer, S. Roth, and A. Alahi, "Boosting omnidirectional stereo matching with a pre-trained depth foundation model," 2025. *Under submission to IROS*.

M. Zayene, J. Endres, A. Havolli, **C. Corbière**, S. Cherkaoui, A. Kontouli, and A. Alahi, "Helvipad: A real-world dataset for omnidirectional stereo depth estimation," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025.

S. Roburin*, **C. Corbière***, G. Puy, N. Thome, M. Aubry, R. Marlet, and P. Pérez, "Take one gram of neural features, get enhanced group robustness," in *ECCV Workshop on Out-Of-Distribution Generalization in Computer Vision*, 2022.

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 (NeurIPS)*, 2019.

C. Corbière, H. Ben-Younes, A. Rame, and C. Ollion, "Leveraging weakly annotated data for fashion image retrieval and label prediction," in *ICCV Workshop on Computer Vision for Fashion*, 2017.

Skills

Programming Languages: Python, Bash, SQL
Packages: PyTorch, Transformers, OpenCV, TensorFlow, Keras, scikit-learn, NumPy, Pandas
Tools: Docker, Git, Jupyter, Linux, Emacs, PyCharm, Notion, Latex
Languages: French (native), English (fluent), Spanish (conversational)

Teaching and Academic Services

- **Reviewer** for NeurIPS, ICCV, ICLR, PAMI, IROS, UnCV Workshop, Transp. Res. Part C.

- o **Project Supervisor** *(2023, 2024)*: Supervised master's students for their semester projects.
- o **Supervising Assistant** *(2023)*: Mentored master's students on group projects for Deep Learning for Autonomous Vehicles (DLAV) course at EPFL.
- o **Teaching Assistant** *(2020, 2021, 2022)*: Conducted practical sessions on Bayesian modeling for 60 students in the Master's program in Data Science (RDFIA) at Sorbonne Université, in collaboration with my supervisor Prof. Nicolas Thome.

Others Activities

- o President of a 500-person electronic music festival, leading a core team of 19 people a managing 80+ on-site staff.
- o Active member of a theatre company, participating in performances and creative projects.
- o Co-founder of a blog focused on ethics in artificial intelligence and data science, active until 2019.