

# QUENTIN BOUNIOT

Paris, France 75014

quentin.bouniot@gmail.com

Personal page ◊ Github ◊ LinkedIn

## EDUCATION

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**CEA-List, Université Paris-Saclay / Université Jean-Monnet, Saint-Étienne** 2019-2023  
*PhD in Computer Science* Paris, France

Thesis : "Towards Few-Annotation Learning in Computer Vision :  
Application to Image Classification and Object Detection tasks",  
Advisor : Prof. Amaury Habrard  
Manuscript link

**CentraleSupélec, Université Paris-Saclay** 2015-2019  
*Engineering degree - M.Sc in Computer Science and Applied Mathematics* Paris, France

**Université de Lorraine** 2018-2019  
*M.Sc in Computer Science and Vision - rank 1/18* Nancy, France

**Higher School Preparatory Classes** 2013-2015  
*Section Mathematics and Physics* Bordeaux, France

**Baccalauréat** 2013  
*Major in Mathematics* Tahiti, French Polynesia

## PROFESSIONAL EXPERIENCE

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**Telecom Paris, Institut Polytechnique de Paris** February 2023 - Present  
*Post-Doctoral Researcher* Paris, France

Working under the supervision of Florence d'Alché-Buc and Pavlo Mozharovskyi.  
Uncertainty quantification and Explainability in Deep Learning.  
Organizing the weekly team meetings.

**CEA-List, Université Paris-Saclay** April - September 2019  
*Research Intern* Paris, France

Working under the supervision of Romaric Audigier and Angélique Loesch.  
Studying the impact of adversarial examples on person re-identification systems.  
Improving the robustness of person re-identification systems using deep learning.

**SmartBuild Asia** February - August 2018  
*Intern - NLP, Summarization, Unsupervised matching* Kuala Lumpur, Malaysia

**Orange France** July 2017 - January 2018  
*Intern - Conversational Agents, Software Engineering* Paris, France

## TEACHING

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**Recent Developments in Responsible AI** 2023 - Now  
*Institut Polytechnique de Paris* Paris, France

Mini-course on *Robust Machine Learning* as part of the *M2 Data Science*.

- Adversarial Robustness ;
- Uncertainty Quantification.

Ressources

## SELECTED PUBLICATIONS

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### PREPRINTS

- **Quentin Bouniot**, Ievgen Redko, Anton Mallasto, Charlotte Laclau, Karol Arndt, Oliver Struckmeier, Markus Heinonen, Ville Kyrki, Samuel Kaski. "Understanding deep neural networks through the lens of their non-linearity." arXiv preprint 2310.11439 (2023). Paper link
- **Quentin Bouniot**, Pavlo Mozharovskiy, Florence d'Alché-Buc. "Tailoring Mixup to Data using Kernel Warping functions." arXiv preprint 2311.01434 (2023). Paper link

### INTERNATIONAL CONFERENCES

- **Quentin Bouniot**, Romaric Audigier, Angélique Loesch, Amaury Habrard. "Proposal-Contrastive Pretraining for Object Detection from Fewer Data." *International Conference on Learning Representations (ICLR)*. 2023.  
(**Oral - Notable top 25%**) Paper link
- **Quentin Bouniot**, Angélique Loesch, Romaric Audigier, Amaury Habrard. "Towards Few-Annotation Learning for Object Detection : Are Transformer-Based Models More Efficient?." *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*. 2023. Paper link
- **Quentin Bouniot**, Ievgen Redko, Romaric Audigier, Angélique Loesch, Amaury Habrard. "Improving Few-Shot Learning Through Multi-task Representation Learning Theory." *Proceedings of the European Conference of Computer Vision (ECCV)*, 2022.  
Paper link Github link
- **Quentin Bouniot**, Romaric Audigier, Angélique Loesch. "Optimal transport as a defense against adversarial attacks." *2020 International Conference on Pattern Recognition (ICPR)*. IEEE, 2021.  
Paper link Github link
- **Bouniot Quentin**, Romaric Audigier, Angélique Loesch. "Vulnerability of person re-identification models to metric adversarial attacks." *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*. 2020.  
(**DeepMind Travel Award.**) Paper link Github link

### PATENTS

- **Quentin Bouniot**, Romaric Audigier, Angélique Loesch. (2020) *Méthode d'apprentissage d'un réseau de neurones pour le rendre robuste aux attaques par exemples contradictoires* (French Patent No. FR3116929A1). Institut national de la propriété industrielle (INPI). Patent link
- **Quentin Bouniot**, Romaric Audigier, Angélique Loesch. (2020) *Learning method for a neural network for rendering it robust against attacks by contradictory examples* (European Patent No. EP4006786A1). European Patent Office (EPO). Patent link

### COMMUNICATIONS

- **Quentin Bouniot** & Ievgen Redko "Understanding Few-Shot Multi-Task Representation Learning Theory", *ICLR Blog Track*, 2022. Blog post link

## ACADEMIC SERVICES

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### MEMBER OF ELLIS PARIS UNIT (MEMBERS)

- Evaluator for ELLIS Pre-screening PhD Program

## PEER REVIEW

- Neural Information Processing Systems (NeurIPS), 2021-2023
- International Conference on Machine Learning (ICML), 2021-2024
- International Conference on Learning Representations (ICLR), 2022, 2024
- IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2023
- NeurIPS Workshop on Meta-Learning (MetaLearn), 2020-2022
- ICML Workshop on Pre-training : Perspectives, Pitfalls, and Paths Forward, 2022
- International Conference on Automated Machine Learning (AutoML), 2022
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI),  
Special Issue on *Learning with Fewer Labels in Computer Vision*, 2021

## ORGANIZING COMMITTEE

- Workshop on *Trustworthy and Frugal ML* with Jayneel Parekh, ELLIS Unconference 2023 in Paris (Link to the event)
- Tutorial on Uncertainty Quantification at WACV 2024 : *The Nuts and Bolts of Deep Uncertainty Quantification*, with Gianni Franchi, Olivier Laurent, and Andrei Bursuc. (Link to the event)

## OPEN-SOURCE

- Developer for torch-uncertainty : Comprehensive PyTorch Library for deep learning uncertainty quantification techniques.

## ORAL PRESENTATIONS

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<b>Ecole Polytechnique - CMAP Seminar</b>	2023
On Few-Annotation Learning and Non-Linearity in Deep Neural Networks	
<b>ELLIS Unconference - Plenary talk</b>	2023
Towards Few-Annotation Learning in Computer Vision : Application to Image Classification and Object Detection tasks	
<b>DSaIDIS Chair - Workshop Frugality in Machine Learning</b>	2023
Towards better understanding meta-learning methods through multi-task representation learning theory.	
<b>CAp - French Machine Learning Conference</b>	2023
Proposal-Contrastive Pretraining for Object Detection from Fewer Data.	
<b>CAp - French Machine Learning Conference</b>	2021
Towards better understanding meta-learning methods through multi-task representation learning theory.	
<b>CEA-List, Université Paris-Saclay</b>	2022
Factory-AI for Deep Learning Purposes.	
<b>GdR ISIS - Towards pragmatic learning in a context of limited labeled visual data</b>	2021
Improving Few-Shot Learning through Multi-task Representation Learning Theory.	
<b>NeurIPS - Workshop on Meta-Learning (MetaLearn)</b>	2020
Putting Theory to Work : From Learning Bounds to Meta-Learning Algorithms.	
<b>DataIA - Workshop "Safety &amp; AI"</b>	2020
Vulnerability of person re-identification models to metric adversarial attacks.	

## TECHNICAL SKILLS

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<b>Computer Languages</b>	Python, C++, Matlab, Java, Javascript
<b>Machine Learning</b>	Pytorch, Keras, Tensorflow, Scikit-Learn
<b>HPC</b>	Slurm
<b>Systems</b>	Unix, Windows, SQL, Git

## LANGUAGES

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<b>French</b>	Native
<b>English</b>	Excellent - C1
<b>Japanese</b>	Studying - A2