QUENTIN BOUNIOT

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Personal page ◇ Github ◇ LinkedIn

EDUCATION

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

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

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

Algorithms and complexity 2020-2022
Teaching Assistant at CentraleSupélec, Université Paris-Saclay *Paris, France*
First year Computer Science course for the main engineering track at CentraleSupélec.
Ressources

SELECTED PUBLICATIONS

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 Mozharovskyi, 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

Member of Paris ELLIS 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

Ecole Polytechnique - CMAP Seminar 2023
On Few-Annotation Learning and Non-Linearity in Deep Neural Networks

ELLIS Unconference - Plenary talk 2023
Towards Few-Annotation Learning in Computer Vision : Application to Image Classification and Object Detection tasks

DSAIDIS Chair - Workshop Frugality in Machine Learning 2023
Towards better understanding meta-learning methods through multi-task representation learning theory.

CAp - French Machine Learning Conference 2023
Proposal-Contrastive Pretraining for Object Detection from Fewer Data.

CAp - French Machine Learning Conference 2021
Towards better understanding meta-learning methods through multi-task representation learning theory.

CEA-List, Université Paris-Saclay 2022
Factory-AI for Deep Learning Purposes.

GdR ISIS - Towards pragmatic learning in a context of limited labeled visual data 2021
Improving Few-Shot Learning through Multi-task Representation Learning Theory.

NeurIPS - Workshop on Meta-Learning (MetaLearn) 2020
Putting Theory to Work : From Learning Bounds to Meta-Learning Algorithms.

DataIA - Workshop "Safety & AI" 2020
Vulnerability of person re-identification models to metric adversarial attacks.

TECHNICAL SKILLS

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

LANGUAGES

French	Native
English	Excellent - C1
Japanese	Studying - A2