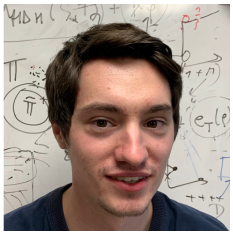

PAUL VIALLARD

Researcher in Computer Science and Machine Learning

General Information

Birth: 12-14-1996 in Berlin, Germany
Nationalities: French/German
Languages: French (C2 level), English (C1 level), German (A2 level)

Email: paul.viallard@inria.fr
Site web: https://paulviallard.github.io/
Google Scholar: https://scholar.google.fr/citations?hl=en&user=k-5mpncAAAAJ/
GitHub: https://github.com/paulviallard/

Education

2022 PhD in Computer Science (and Machine Learning)
Jean Monnet University, Saint-Etienne, France
PAC-Bayesian Bounds and Beyond: Self-Bounding Algorithms and New Perspectives on Generalization in Machine Learning
Supervisors:

- Prof. Amaury Habrard, Professor, Jean Monnet University, Saint-Etienne, France
- Dr. Pascal Germain, Assistant professor, Laval University, Canada
- Dr. Emilie Morvant, Assistant Professor, Jean Monnet University, Saint-Etienne, France

Reviewers:

- Prof. Stéphane Canu, Professor, INSA Rouen, France
- Prof. Liva Ralaivola, VP Research, Criteo AI Lab, France

Examinator:

- Prof. Marc Tommasi, Professor, Université de Lille, Inria, France

President of the jury and Examinator:

- Prof. Rémi Gribonval, Senior Researcher, ENS Lyon, Inria, France

2019 MSc. Machine Learning and Data Mining *(Master "Machine Learning and Data Mining" avec mention très bien)*
Jean Monnet University, Saint-Etienne, France
Interpreting Neural Networks as Majority Votes with the PAC-Bayesian Theory
Supervisors:

- Dr. Rémi Emonet, Assistant Professor, Jean Monnet University, Saint-Etienne, France
- Prof. Amaury Habrard, Professor, Jean Monnet University, Saint-Etienne, France
- Dr. Emilie Morvant, Assistant Professor, Jean Monnet University, Saint-Etienne, France

2017 BSc. Computer Science *(Licence Informatique avec mention très bien)*
Jean Monnet University, Saint-Etienne, France

2014 French Baccalauréat of Science *(BAC S avec mention bien)*
Lycée Jacob Holtzer, Firminy, France

Research Activities

Work Experience

February 2023 -	**Postdoctoral researcher** *SIERRA Project-Team* *Inria Paris, France* *Supervisor:* Dr. Umut Şimşekli
September 2019 - December 2022	**Doctoral researcher** *Data Intelligence Team* *Hubert Curien Laboratory UMR CNRS 5516* *Jean Monnet University, Saint-Etienne, France* *Supervisors:* Prof. Amaury Habrard, Dr. Pascal Germain, Dr. Emilie Morvant
February 2019 - June 2019	**Research intern** *Data Intelligence Team* *Hubert Curien Laboratory UMR CNRS 5516* *Jean Monnet University, Saint-Etienne, France* *Supervisors:* Prof. Amaury Habrard, Dr. Emilie Morvant and Dr. Rémi Emonet
April 2018 - June 2018	**Research intern** *SNA-EPIS Laboratory EA 4607* *Jean Monnet University, Saint-Etienne, France* *Supervisors:* Prof. Vincent Pichot and Prof. Jean-Claude Barthélémy

Publications

Articles in International Peer-Reviewed Conference

1. **Self-Bounding Majority Vote Learning Algorithms by the Direct Minimization of a Tight PAC-Bayesian C-Bound**
   Paul Viallard, Pascal Germain, Amaury Habrard, Emilie Morvant
   European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), online, 2021
   (paper) (supplementary material) (source code)

2. **Learning Stochastic Majority Votes by Minimizing a PAC-Bayes Generalization Bound**
   Valentina Zantedeschi, **Paul Viallard**, Emilie Morvant, Rémi Emonet, Amaury Habrard, Pascal Germain, Benjamin Guedj
   Conference on Neural Information Processing Systems (NeurIPS), online, 2021
   (abstract) (paper) (supplementary material)

3. **A PAC-Bayes Analysis of Adversarial Robustness**
   Paul Viallard, Guillaume Vidot, Amaury Habrard, Emilie Morvant
   Conference on Neural Information Processing Systems (NeurIPS), online, 2021
   (abstract) (paper) (supplementary material) (source code)

Articles in International Peer-Reviewed Workshop

4. **Interpreting Neural Networks as Majority Votes through the PAC-Bayesian Theory**
   Paul Viallard, Rémi Emonet, Pascal Germain, Amaury Habrard, Emilie Morvant
   NeurIPS 2019 Workshop on Machine Learning with guarantees, Vancouver, Canada, 2019
   (paper)

Communications in Peer-Reviewed French Conference

5. **Intérêt des bornes désintégrées pour la généralisation avec des mesures de complexité**
   Paul Viallard, Rémi Emonet, Pascal Germain, Amaury Habrard, Emilie Morvant, Valentina Zantedeschi
   Conférence sur l'Apprentissage automatique (CAp), Vannes, 2022

6. **Learning Stochastic Majority Votes by Minimizing a PAC-Bayes Generalization Bound**
   Valentina Zantedeschi, **Paul Viallard**, Emilie Morvant, Rémi Emonet, Amaury Habrard, Pascal Germain, Benjamin Guedj
   Conférence sur l'Apprentissage automatique (CAp), Vannes, 2022

7. **Apprentissage de Vote de Majorité par Minimisation d'une C-Borne**
   Paul Viallard, Emilie Morvant, Pascal Germain
   Conférence sur l'Apprentissage automatique (CAp), online, 2021

8. **Dérandomisation des Bornes PAC-Bayésiennes**
   Paul Viallard, Emilie Morvant, Pascal Germain
   Conférence sur l'Apprentissage automatique (CAp), online, 2021

9. **Une Analyse PAC-Bayésienne de la Robustesse Adversariale**
   Guillaume Vidot, **Paul Viallard**, Emilie Morvant
   Conférence sur l'Apprentissage automatique (CAp), online, 2021

10. **Théorie PAC-Bayésienne pour l'apprentissage en deux étapes de réseaux de neurones**
    Paul Viallard, Rémi Emonet, Amaury Habrard, Emilie Morvant, Pascal Germain
    Conférence sur l'Apprentissage automatique (CAp), online, 2020

Unpublished Research Reports

11. **A General Framework for the Disintegration of PAC-Bayesian Bounds**
    Paul Viallard, Pascal Germain, Amaury Habrard, Emilie Morvant
    2022

12. **Generalization Bounds with Arbitrary Complexity Measures**
    Paul Viallard, Rémi Emonet, Amaury Habrard, Emilie Morvant, Valentina Zantedeschi
    2022

Talks

Seminars

April 12th, 2023	**Complexity Measures in Generalization Bounds: New Results and Future Directions** The Seminar of OBELIX Team, Université Bretagne-Sud, Online
December 8th, 2021	**A PAC-Bayes Analysis of Adversarial Robustness** **Learning Stochastic Majority Votes by Minimizing a PAC-Bayes Generalization Bound** NeurIPS21@Paris, Sorbonne University, Paris, France
November 16th, 2021	**Learning Stochastic Majority Votes by Minimizing a PAC-Bayes Generalization Bound** TAUDoS Meeting, Jean Monnet University, Saint-Etienne, France
June 18th, 2021	**Majority Vote Learning in PAC-Bayesian Theory: State of the Art and Novelty** Signal Processing - Machine Learning Seminars, CNRS LIS, Aix-Marseille University, Online

October 27th, 2020	**Derandomization of PAC-Bayesian Bounds: A General Pointwise Approach** APRIORI Meeting, Online
July 1st, 2019	**Interpreting Neural Networks as Majority Votes with the PAC-Bayesian Theory** PhD Student Seminars, Jean Monnet University, Saint-Etienne, France
May 27th, 2019	**Interpreting neural networks as majority votes** APRIORI Meeting, Inria Paris, Paris, France

Science Popularization

November 27th, 2020	**La pop culture dans l'oeil des expert·es !** Nuit Européenne des Chercheur·e·s 2020, YouTube

Student Supervisions

April 2022 - July 2022	**Alexiane Fraisse** Random Fourier Features and Domain Adaptation Supervised with Dr. Guillaume Metzler and Dr. Emilie Morvant
April 2021 - June 2021	**Luiza Dzhidzhavadze** A Multiclass C-Bound-Based Algorithm Supervised with Dr. Emilie Morvant
April 2021 - June 2021	**Himanshu Pandey** A Multiclass C-Bound-Based Algorithm Supervised with Dr. Emilie Morvant

Participation in Research Projects

- ANR APRIORI ANR-18-CE23-0015 – Project member
- ANR TAUDoS ANR-20-CE23-0020 – Project member

Reviewing

2022	ICML 2022
2021	ICML 2021, CAp 2021
2020	IDA 2020, ICML 2020

Administrative Activities

Since May 2021	Board Member of the FIL (Fédération Informatique de Lyon)
May 2021 - January 2023	Board Member of the Hubert Curien Laboratory
January 2020 - November 2021	Secretary in the PhD students association of Saint-Etienne

Teaching Activities (In French)

2021-2022

L2 Informatique

Advanced programming in C	18h TP
Introduction to Operating Systems	5h CM / 10h TP

L2 Informatique (pour les étudiants en alternance)

Introduction to debugging in C	2h CM / 2h TP

L1 Mathématiques-Informatique-Physique-Chimie

Introduction to Artificial Intelligence	6h CM

2020-2021

L2 Informatique

Advanced programming in C	18h TP
Introduction to Operating Systems	7h CM / 9h TD

L2 Informatique (pour les étudiants en alternance)

Introduction to debugging in C	2h CM

L1 Mathématiques-Informatique-Physique-Chimie

Introduction to Artificial Intelligence	6h CM
Introduction to LaTeX	16h TP
Programming in Python	14h TP

2019-2020

L2 Informatique

Advanced programming in C	36h TP

L1 Mathématiques-Informatique-Physique-Chimie

Introduction to Artificial Intelligence	4h CM
Introduction to LaTeX	8h TP
Programming in Python	14h TD