

Verbockhaven Manon

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🌐 MyWebPage

➤ Inria GitLab Personal GitLab



Education

- 2021 – 2025 ~ **Ph.D. (EDSTIC, INRIA, TAU, Université Paris-Saclay)** : Spotting expressivity bottlenecks in neural networks and fixing them optimally (Neural networks, Expressive power, Low-rank approximation, Optimization); supervised by [Sylvain Chevallier](#) and [Guillaume Charpiat](#) and reviewed by [Aurélie Névéol](#), [Rémi Gribonval](#), [Hervé Luga](#), [Guillaume Lecué](#) and [David Picard](#).
Defined a [Neural Architecture Search method](#) using the functional gradient; implemented a [Python module](#); built a team to continue the topic.
- 2020 – 2021 ~ **Master 2 (Mathematics Orsay / Université Paris-Saclay)** : Mathematics of Randomness (Research Master).
Courses taken : concentration inequalities, convex analysis and optimization, high-dimensional probability and statistics, model selection.
- 2018 – 2021 ~ **Master 1 and 2 (ENSAE Engineering School)** : Data Science, Statistics and Learning.
Courses taken : machine learning, Bayesian statistics, non-parametric estimation and testing, advanced optimization, Monte Carlo Markov Chain, natural language processing, reinforcement learning, statistics, optimal transport.

Employment History

- 2020 ~ **(Master 1) internship Extreme Blue (IBM)** : cognitive biases in business decision support (econometric, statistics, non-parametric estimation).
Defined a research project which addresses cognitive biases in business decision support; constructed metrics and defined the appropriate statistical tests; conducted an online experiment to collect the data; wrote an article to present the results.
- 2019 ~ **Internship STIMIT-ML (FaberNovel)** : automatize the evaluation of tasks' difficulty in Scrum model (NLP).
Implemented and put into production an application helping developers to classify and rate their assignments.

Talks

- 2025 ~ **ESI (Erwin Schrödinger International Institute for Mathematics and Physics)** : growing TINY networks with functional gradient and comparison with two other Neural Architecture Search methods ([video](#)).
- 2023 ~ **GSI Conference** : Growing TINY network, spotting expressivity bottlenecks.

Research Publications

Journal Articles

- 1 M. Verbockhaven, T. Rudkiewicz, S. Chevallier, and G. Charpiat, “Growing tiny networks: Spotting expressivity bottlenecks and fixing them optimally,” *Transactions on Machine Learning Research*, 2024, ISSN: 2835-8856.  URL: <https://openreview.net/forum?id=hbtG6s6e7r>.

Conference Proceedings

- 1 S. Douka, M. Verbockhaven, T. Rudkiewicz, *et al.*, “Growth strategies for arbitrary DAG neural architectures,” in *Proc. ESANN’25*, Bruges, Belgium, Apr. 2025.  URL: <https://hal.science/hal-04902059>.
- 2 T. Baudel, M. Verbockhaven, V. Cousergue, G. Roy, and R. Laarach, “ObjectivAIze: Measuring Performance and Biases in Augmented Business Decision Systems,” in *18th IFIP Conference on Human-Computer Interaction (INTERACT)*, C. Ardito, R. Lanzilotti, A. Malizia, *et al.*, Eds., ser. Human-Computer Interaction – INTERACT 2021, Part 3: Human-Centered AI, vol. LNCS-12934, Bari, Italy: Springer International Publishing, Aug. 2021, pp. 300–320.  DOI: [10.1007/978-3-030-85613-7_22](https://doi.org/10.1007/978-3-030-85613-7_22).

Skills

- Languages ~ Strong reading, writing, and speaking competencies for English (see [my manuscript](#) and [a recent presentation](#)).
- Coding ~ Advanced : Python (see [a recent project](#)) and $\text{\LaTeX}$.
 Intermediate : HTML, Caml, R, SQL.

Miscellaneous Experience

Teaching

- 2023 – 2025 ~ **mathematical club MATH.en.JEANS** : created research subjects on mathematical modelling for high school students ([list of my subjects](#)).
- 2022 – 2025 ~ **Mathematical club ParisMaths (ENS)** : gave two classes at the Mathematical club [Paris-Maths](#) at ENS Ulm.

Certification

- 2019 ~ **Skydiving** : brevet B.
 ~ **Piano** : Level 4th professional at [École Normal de Musique de Paris Alfred Cortot](#).
- 2016 ~ **Diving** : [Advanced Open Water Diver \(PADI\)](#).

Travel

- 2025 ~ **Road-trip** : two months doing wild camping alone in the national parks of France ([my route](#)).