

Valentin Abadie

Normalien - ETH Zurich

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Experience

- 2022–Now **Research assistant, assistant lecturer, ETH Zurich**, Zurich, Switzerland.
Working as Ph.D. student with Prof. Helmut Boelcskei, on deep learning theory.
- 2021 **Teacher for a private institution, Edulide**, Paris, France.
Intensive classes for students in preparatory class.
- 2020–2021 **Research intern, Huawei**, Boulogne-Billancourt, France.
Boolean neural networks : building code architecture from scratch, and provided mathematical methods to enhance performances, both for accuracy and speed. I have a patent under my name.
- 2020 **Research intern, Paris Brain Institute**, Paris, France.
Image segmentation for Alzheimer's disease. 2 papers were published based on this work.
- 2019 **Research intern, NYU Wireless**, New York, USA.
NLP for video segmentation.
- 2017–2018 **Teacher assistant, Lycée Camille Claudel**, Palaiseau, France.
Teacher assistant in math, physics and chemistry in high school.

Papers

- Abadie, V., Boelcskei, H. (2024). On the invariance of the Kolmogorov complexity of β -expansions. arXiv preprint arXiv:2405.03816.
- Maňoušková, K., Abadie, V., Ounissi, M., Jimenez, G., Stimmer, L., Delatour, B., Racocceanu, D. (2022, February). Tau Protein Discrete Aggregates in Alzheimer's Disease: Neuritic Plaques and Tangles Detection and Segmentation using Computational Histopathology. In SPIE Medical Imaging 2022.

Education

- 2019–2020 **ENS Paris-Saclay, Master 2 MVA**, Paris, France.
Reinforced Master's in mathematics and computer science.
- 2018–2019 **ENS Paris-Saclay, Master 1 E3A FeSUP**, Cachan, France.
Reinforced Master's in computational and electrical engineering.
- and **Université Paris-Sud, Magistère Physique Fondamentale**, Orsay, France.
Master's in fundamental physics.
- 2017–2018 **ENS Paris-Saclay, Formation SAPHIRE**, Cachan.
Reinforced Bachelor's in Applied Physics and Engineering.
- 2015–2017 **Lycée Bellevue, Classe préparatoire**, Toulouse, France.
Intensive 2-year class preparing for highly selective entrance examination to French Grandes Écoles.
- 2012–2015 **Lycée Théophile Gautier, High School degree**, Tarbes, France, obtained with 1st class honors.
Major in Mathematics.

Key skills

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| English | C1-level Cambridge Advanced diploma. | Reading, Speaking, Writing. |
| Word processor | Mastering of <i>Office</i> , <i>LateX</i> . | |
| Computer science | Mastering of <i>Python</i> , <i>Bash</i> , <i>Git</i> , <i>C++</i> , <i>Matlab</i> , <i>SVN</i> . | |

Interests and extra-curricular activities

- Music Playing the **guitar** since I was 11, using computer-assisted music software to compose songs. Also taking **singing** and **piano classes**.
- Sport **Swam** in competitions from 2009 to 2012, and in amateur since 2012. Also doing lots of cycling, skiing and **running**. I enjoy long **bike trips** : I performed a 15 000 km trip across Europe in 2021, crossing 25 countries, with an average of 120 km per day. I have been interviewed for that, and published in local journals.
- Associative Member of **Start in Saclay** since 2019, the first student entrepreneurship association of France, in terms of the number people helped with their start-up. Instigator and organisator a 2 days long **hackathon** involving *ENS Alumni* and *IBM* on december 2020. The event was named **Challenge Santé et Digital**, meaning "Challenge Health and Digital". Also member of the **student association** of ENS Paris-Saclay in 2018-2019.

References

- **Helmut Boelcskei** : my Ph.D. advisor.
- **Thomas Rodet** : the director of Electrical engineering's department at ENS Paris-Saclay.
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