

# 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  $\beta$ -expansions. arXiv preprint arXiv:2405.03816.
- Maňoušková, K., Abadie, V., Ounissi, M., Jimenez, G., Stimmer, L., Delatour, B., Racoceanu, 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 1<sup>st</sup> class honors.  
Major in Mathematics.

## Key skills

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

## Interests and extra-curricular activities

Music	Playing the <b>guitar</b> since I was 11, using computer-assisted music software to compose songs. Also taking <b>singing</b> and <b>piano classes</b> .
Sport	<b>Swam</b> in competitions from 2009 to 2012, and in amateur since 2012. Also doing lots of cycling, skiing and <b>running</b> . I enjoy long <b>bike trips</b> : 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 <b>Start in Saclay</b> 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 <b>hackathon</b> involving <i>ENS Alumni</i> and <i>IBM</i> on december 2020. The event was named <b>Challenge Santé et Digital</b> , meaning "Challenge Health and Digital". Also member of the <b>student association</b> 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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