






# Victor Fernando Lopes de Souza

Engineering Student at CentraleSupélec

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## About me

Passionate for innovation and technology. Interested in approaching complex problems and grasping complex concepts. Enthusiast of Mathematics, Computing, Artificial Intelligence, Machine Learning, System Modeling and Control, Philosophy, Quantum Physics, Financial Markets, Cybersecurity, Blockchain and Discrete Automation.

## Skills

Multiple experiences on Python,  $\text{\LaTeX}$ , Matlab, Simulink, Linux, Git, R, Ladder, Java, C++, AutoIt and BASIC.

Experience on Web developing using PHP, HTML, CSS, SQL and JavaScript.

Experience on data analysis and neural nets using Pandas, Numpy, Tensorflow and Keras.

Good Mathematical Background and knowledge in Control's Systems, Automata and Discrete-Event's Systems.

Languages: Portuguese (mother tongue), English, French and Spanish.

## Education

- |           |   |                     |
|-----------|---|---------------------|
| 2022-2023 | Université Paris-Saclay<br>Master in Systems, Signals and Image Processing  | Gif-Sur-Yvette (FR) |
| 2021-2023 | CentraleSupélec<br>Engineering, with mention in Control   | Gif-Sur-Yvette (FR) |
| 2018-2023 | UFSC - Universidade Federal de Santa Catarina<br>Control and Automation Engineering<br>PAM - Advanced Mathematics Program | Florianópolis (BR)  |
| 2021-2022 | Paris IV - Sorbonne Université<br>Bachelor's degree in Philosophy   | Paris (FR)          |
| 2014-2017 | IFSC - Instituto Federal de Santa Catarina<br>Engineering Technician in Electronics                                       | Florianópolis (BR)  |

## Work Experience

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|-----------|---|--------------------|
| 2020-2021 | Student Researcher in Neural Nets<br>at EMBRAPPII, in partnership with Central Energia (R&D on trading)<br>Worked on building, training, and evaluating LSTM networks regarding the prediction of precipitation data for energy trading | Florianópolis (BR) |
| 2018-2021 | Student Researcher in Algebraic Topology<br>at IMPA (Brazilian Institute of Pure and Applied Mathematics)<br>Research on advanced topics related to Geometric Group Theory  | Florianópolis (BR) |
| 2018-2019 | Calculus Teaching Assistant<br>at the Mathematics Department, UFSC<br>Developed PHP, Shell, BASIC and Kernel scripts to automate tasks related to the management, monitoring and control of the backbone                                | Florianópolis (BR) |
| 2016-2017 | Intern as Web Developer<br>at Oi S.A. (third largest telecommunication company in Latin America)<br>Developed PHP, Shell, BASIC and Kernel scripts to automate tasks related to the management, monitoring and control of the backbone  | Florianópolis (BR) |

## Projects

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|-----------|---|---------------------|
| 2022      | Training Neural Networks with Kalman Filters<br>Implementation of modern control methods for training Neural Nets and use of the Kalman filter as an optimization algorithm | Gif-Sur-Yvette (FR) |
| 2022      | Exploring portfolio optimization methods, with BNP<br>Construction, Implementation and Evaluation of different portfolio allocation methods                                 | Gif-Sur-Yvette (FR) |
| 2022      | System for inform on cancer, with Health Guide AI<br>Testing of different recommendation algorithms for this purpose  | Gif-Sur-Yvette (FR) |
| 2021-2022 | Neural Nets: Attacks and Robustness, with SystemX<br>Study and implementation of some attack methods on NN systems  | Gif-Sur-Yvette (FR) |

## Honours and Awards

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|------|---|
| 2021 | BRAFITEC, Merit Scholarship for Double Degree in France             |
| 2019 | Qualified to Final Phase, OBMU (National University Maths Olympiad) |
| 2018 | Freshman Award, OEI (Organization of Ibero-American States)         |
| 2017 | Silver Medal, OBMEP (National High School Mathematics Olympiad)     |
| 2016 | Silver Medal, OBMEP (National High School Mathematics Olympiad)     |
| 2014 | Honourable Mention, OBMEP (National High School Maths Olympiad)     |