

Lausanne  
(Switzerland)  
abad.elias00@gmail.com  
elias.abadrocamora@epfl.ch

# Elias Abad Rocamora

GitHub: [megaelius](#)  
LinkedIn: [Elias Abad](#)  
Personal page:  
[megaelius.github.io](#)




## RESEARCH INTERESTS

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Interested in building trustworthy Machine Learning systems and developing methods for verifying its properties. Passionate of formalizing general problems as optimization problems and devising ways of solving them. Motivated by the intersection of theory and implementation and its fast adaptation into industry/society in Machine Learning research.




## EDUCATION

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|---|--|----------------------|
|  | <b>PhD in robustness of Machine Learning</b><br><i>LIONS (Volkan Cevher's Lab) - École Polytechnique Fédérale de Lausanne (EPFL)</i> | <b>09/23 - Today</b> |
|  | <b>MSc in Applied and Computational Mathematics</b> <b>GPA: 8.58/10</b><br><i>Universidad Carlos III de Madrid (UC3M)</i>            | <b>09/22 - 06/23</b> |
|  | <b>BSc in Data Science and Engineering</b> <b>GPA: 8.64/10</b><br><i>Universitat Politècnica de Catalunya (UPC)</i>                  | <b>09/18 - 07/22</b> |


## RESEARCH EXPERIENCE - PUBLICATIONS

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|--|--------------------|
| <b>Revisiting Character-level Adversarial Attacks for Language Models</b>              | <b>9/23 - 2/24</b> |
| <i>PhD Project / ICML'24 <a href="#">ArXiv</a></i>   |                    |
| <b>Efficient local linearity regularization to overcome Catastrophic Overfitting</b>  | <b>2/23 - 9/23</b> |
| <i>Master's Thesis / ICLR'24 <a href="#">ArXiv</a></i>   |                    |
| <b>Sound and Complete Verification of Polynomial Networks</b>                           | <b>2/22 - 2/23</b> |
| <i>Bachelor's Thesis / NeurIPS'22/ JMLR extension <a href="#">ArXiv</a></i>  |                    |

## WORK EXPERIENCE

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|---|------------------------|--------------------|
|    | <b>Research Intern</b> | <b>6/21 - 1/22</b> |
| <i>Institut de Robòtica e Informàtica Industrial (IRII)</i>   |                        | <i>Barcelona</i>   |
| <ul style="list-style-type: none"><li>• Worked with Dr. Jordi Sánchez Riera from June to November on building a system able to classify different helicopter models, read their plates and track their movement and the people in the heliport in real time. Successfully delivered the product to the company requesting it.</li><li>• During the last two months, I assisted in a research project about Reinforcement Learning applied to MoCap movements imitation.</li></ul> |                        |                    |

## PROJECTS

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|---|--------------------|
| <b>ZeClinics</b>  | <b>2/21 - 6/21</b> |
| <i>Engineering projects course</i>  |                    |
| <ul style="list-style-type: none"><li>• Took part in the development of image processing tools for zebrafish larvae image segmentation and classification. Also collaborated in the development of a GUI for using these tools.</li><li>• Team leader managing communication with stakeholders and the team's workflow, which was constituted by 11 students.</li></ul> |                    |

## AWARDS

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- **First place** in the Elche Regional Physics Olympiad (2017)
- **Second place** in the Elche Regional Mathematics Olympiad (2017)
- **Participant** in the Spanish National Physics Olympiad (2018)
- **Winner of the BitsXlaMarató Hackathon** (2020)
- **Winner of the FME Datathon** (2021)
- **JAE-Intro Introduction to Research Scholarship.** Awarded by Spanish National Research Institute (CSIC) to excellent BSc and MSc students (2021)
- **Scholar Award NeurIPS** (2022)
- **Honors in the Statistical Signal Processing course** (2023)
- **Honors in the MSc Thesis** (2023)

## SKILLS

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|----------------------|---|
| <b>Programming</b>   | Python, R, C, C++, Git, bash, L <sup>A</sup> T <sub>E</sub> X, Matlab       |
| <b>Communication</b> | Spanish (native), Catalan (advanced), English (advanced), French (beginner) |

## HOBBIES

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Outdoors and endurance sports enthusiast. Competitor in Track and Field and Trail Running at top national level for the last 7 years.

### Shortlist of Accomplishments

- **Mont Blanc (4810m) ascensionist** (Chamonix, 2015).
- **10<sup>th</sup> in the Spanish Vertical Kilometer Championships** (Fuente Dé, 2016)
- **6<sup>th</sup> in the Spanish Trail Running Championships** (Zumaia, 2017)
- **Spanish High Performance Athlete Level B** (2017-2019)
- **2<sup>nd</sup> in the Valencian Vertical Kilometer Championships** (Finestrat, 2021)
- **18<sup>th</sup> team in the Spanish Cross Country Championships by Teams** (Atapuerca, 2022)