# DAVID ÁLVAREZ ROSA

**Mathematics and Industrial Engineering student**


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## EDUCATION

### Degree in Mathematics — 240 ECTS

**Polytechnic University of Catalonia – FME**

September 2016 – Present | Barcelona, Catalonia

- Relevant **subjects**: Linear Algebra, Calculus, Mathematical Programming, Algorithmics, Abstract Algebra, Geometry, Analysis, Differential Equations, Probability and Statistics.

A rigorous and proof-oriented course with a robust mathematical base, providing a solid knowledge in its applications (algorithms, computing).

### Degree in Industrial Technology Engineering — 240 ECTS

**Polytechnic University of Catalonia – ETSEIB**

September 2016 – Present | Barcelona, Catalonia

- Relevant **subjects**: Mechanics, Thermodynamics, Electromagnetism, Electrotechnics, Fluid Mechanics, Materials and Electronics.

Multidisciplinary and integrative vision of industrial engineering. Acquired knowledge and skills essential for future technological development.

### Scientific and Technological Baccalaureate — 2 years

**Irabia-Izaga school**

September 2014 – June 2016 | Burlada, Navarre

- Final grade: 9.47/10.
- University access exam grade (*Selectividad*): 12.76/14.

### Compulsory Secondary Education — 4 years

**Irabia-Izaga school**

September 2010 – June 2014 | Burlada, Navarre

## COURSES

### Game theory — 20 hours

**Polytechnic University of Catalonia – CFIS**

April 2019 | Barcelona, Catalonia

Game theory is the study of **mathematical models** of strategic interaction among **rational** decision-makers. It has applications in fields such as economics, logic and computer science.

### Introduction to Machine Learning & Deep Learning[1] — 20 hours

**Polytechnic University of Catalonia – CFIS**

January 2019 | Barcelona, Catalonia

- Basic principles of machine learning and classical methods.
- Introduction to deep learning from both an algorithmic and computational point of view.
- Study of its applications to reinforced learning and the analysis of multimedia content.

## INSPIRATION

*"The science of today is the technology of tomorrow."*

## SKILLS

Accustomed to working in a team, motivated and detailed in projects.

**Programming languages.**

Solid knowledge of:

C++ | Python | Octave/Matlab

Notions of: AMPL | Bash | R

Experience in **web development**:

HTML | CSS | JavaScript | PHP

Others: Linux | Git | ROS | LaTeX

## LANGUAGES

**Spanish** ●●●●●

Mother tongue.

**English** ●●●●◐

C1 level accreditation (August 2017).

**Catalan** ●●●○○

Very good understanding of the language. Basic level in oral and written expression.

## AWARDS

**Spanish Physics Olympiad**

April 2016 | Seville, Andalusia

Silver medal in the national phase.

**Spanish Physics Olympiad**

March 2016 | Pamplona, Navarre

Winner of the local phase.

**Spanish Mathematical Olympiad**

January 2016 | Pamplona, Navarre

Second position in the local phase.

# PROJECTS

## Driverless – Motorsport

20 hours/week

**Polytechnic University of Catalonia – ETSEIB**

September 2019 - Present

I'm part of the **Perception** section of Driverless UPC team, which is a team formed by undergraduate engineers in charge of the designing, manufacturing and testing of a **fully autonomous** car that will participate in national and international competitions between universities.

## Robotic Arm – Tic Tac Toe[3]

75 hours

**Polytechnic University of Catalonia – ETSEIB**

January 2019 - June 2019

Creation of virtual animation of a **robotic arm** able to play the Tic Tac Toe game and **never lose**. The source code of this project can be found in my personal Gitlab page[4].

## Email server

15 hours

**Personal project**

August 2018 - September 2018

- Configuration of a modern, secure personal email server based on free software (Postfix and Dovecot).
- Supports opportunistic TLS and IMAP access.

## Study Schedule[5]

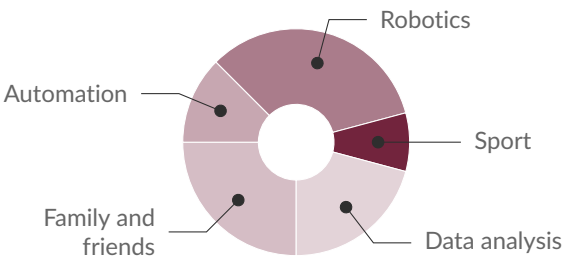
60 hours

**Polytechnic University of Catalonia – ETSEIB**

January 2018 - June 2018

Creation of a customized study schedule generator adapted to students, through **data analysis**: clustering/k-nearest-neighbours. In particular, based on past grades, desired performance and schedule restrictions we were able to create the best study schedule possible to **maximize** user **performance**.

# INTERESTS




# OTHERS

**Former violinist**

2008 - 2015 Pamplona, Navarre

I played the violin in the conservatory in its first courses.

**Tutor**

Academic classes of support and preparation for the Mathematical Olympiad.

**Linux user**

Years of use of Linux distributions (Arch, Debian and Ubuntu).

**System administrator**

Administrator of a personal Virtual Private Server: data synchronization between devices, website[2], email, personal Git server.

**Athlete**

Regular sportsman, runner and ex-triathlete.

**Driving license**

October 2017 Pamplona, Navarre

Spanish driving license (B).

# FOOTNOTES

For the accessibility of the document, the most relevant links are included.

1. sites.google.com/view/dlcfis2019/home
2. david.alvarezrosa.com
3. gitlab.com/DavidAlvarez
4. david.alvarezrosa.com/tres-en-raya
5. http://david.alvarezrosa.com:5000/