

# PABLO DÍEZ

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## EDUCATION

### Deusto University

B.S. in Computer Engineering | 3.2 GPA

Bilbao, Spain

09/2023 - 06/2027

### Colegio Vizcaya

High School

Bilbao, Spain

09/2017- 06/2023

## CERTIFICATIONS

- **Stanford University** Machine Learning Specialization

2025

## SKILLS

- **Programming Languages:** C, C++, Python, Java, SQL
- **Languages:** Spanish (native), English (C1), Basque (advanced)

## PROJECTS

### Fluid Simulation

C++

- Developed an interactive real time fluid simulation using the Smoothed Particle Hydrodynamics (SPH) method, utilizing GPU acceleration through OpenGL for efficient rendering.
- Incorporated complex physics models to realistically simulate fluid dynamics like pressure, viscosity and density.
- Optimized performance using spatial hashing techniques to accelerate neighbor searches and reduce computational complexity.
- Achieved real time frame rates (>60 FPS) with hundreds of particles, demonstrating scalability and efficiency.

### Gym Routine Planner

Java

- Developed a fully functional desktop application for creating and tracking personalized gym routines.
- Designed intuitive and dynamic user interfaces using Java Swing.
- Implemented features such as user registration, routine planning, progress tracking, profile customization, and social exploration of other users.
- Handled persistent data storage and retrieval using both SQLite and MySQL databases.

### Tumor Detection in MRI Images

Python

- Designed and trained a convolutional neural network (CNN) to identify tumors in real MRI scans using TensorFlow and Keras.
- Utilized AutoKeras to automatically search for the most efficient architecture.
- Trained the model on a dataset of 3,800 MRI images (75% training, 25% validation), achieving an accuracy of 87.83%.

## COMPETITIONS

- Member of the Deusto Electronic Club of Developers and Engineers, participating in numerous Capture The Flag competitions focused on vulnerability exploitation, cryptography and advanced technical system analysis.
- Ranked 2<sup>nd</sup> place nationally in Spain on [CTFtime.org](https://CTFtime.org) (2025).
- Authored detailed technical writeups of complex CTF challenges, published on my personal site: [pablo10diez2.github.io](https://pablo10diez2.github.io).
- Participant in university hackathons, delivering innovative solutions under tight deadlines and in collaborative team environments.