Pablo Díez

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EDUCATION

Deusto University   Bilbao, Spain
B.S. in Computer Engineering   09/2023 - 06/2027

Colegio Vizcaya   Bilbao, Spain
High School   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 2nd place nationally in Spain on CTFtime during more than 6 months.
- Authored detailed technical writeups of complex CTF challenges, published on my personal site: pablo10diez2.github.io.
- Participant in university hackathons, delivering innovative solutions under tight deadlines and in collaborative team environments.