Fabricio González Cerdas

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Education

Instituto Tecnológico de Costa Rica: Computer Engineering School — Cartago, CR
Licentiate Degree in Computer Engineering — Expected Graduation: 2028
Relevant Coursework: Data Structures and Algorithms (I, II), Computer Architecture, Digital Design, Databases, Numerical Analysis for Engineering, Circuits (DC, AC), Active Electronic Components, Electronic Circuit Laboratory, Principles of Engineering Modeling.

Colegio de San Luis Gonzaga — Cartago, CR
High School Diploma — 2021

Experience: Academic and personal Projects

Smart Pointers Implementation *Data Structures and Algorithms II*
Designed and implemented custom smart pointers in `C++` to manage dynamic memory safely and efficiently, applying advanced data structure concepts.

Tower Defense Game *Data Structures and Algorithms II*
Developed a tower defense game in `C++` featuring enemy pathfinding algorithms and genetic algorithms for optimization. Focused on practical application of graphs, trees, and heuristic methods.

RAID Storage Application *Data Structures and Algorithms II*
Created a file storage application implementing RAID levels to ensure data redundancy and fault tolerance, applying concepts of data management and system reliability.

ARM Processor Design with VGA Driver *Digital Design*
Designed and implemented a custom ARM-based processor using `SystemVerilog`, including a VGA driver to display output. Developed and executed an assembly-level application running on the designed processor, integrating hardware and low-level software concepts.

Eigenvalue-Based Principal Component Analysis (PCA) *Numerical Analysis for Engineering*
Applied eigenvalue and eigenvector computation techniques to implement Principal Component Analysis (PCA) for data dimensionality reduction, emphasizing its application in Artificial Intelligence and data analysis.

F1 Garage Simulator *Web Development / Databases Project*
Developed a web-based simulator for managing and maintaining Formula 1 races, including garage operations and race workflows. Implemented database-backed data management and integrated `Grafana` dashboards to visualize performance statistics and system metrics.

Additional academic and personal projects can be found on my GitHub:

`https://github.com/Fabbbri`

Skills

Programming Languages: Python, C, `C++`, `C#`, Java, Kotlin, JavaScript, SQL, Octave.
Hardware Description Languages: SystemVerilog, VHDL.
Databases: MySQL, SQL Server, MongoDB.
Tools & Platforms: Visual Studio Code, Quartus, MATLAB, Multisim, LTspice, Grafana, Microsoft Azure, LaTeX, EasyEDA.
Languages: Spanish (Native), English (B2)
Laboratory: Hands-on experience operating laboratory equipment such as multimeters, oscilloscopes, and power supplies for electronic testing, measurement, validation, and troubleshooting.