NICOLAS MARULANDA
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EDUCATION

Carnegie Mellon University   Pittsburgh, PA, USA
Bachelor of Science in Computer Science   Expected June 2026
- Programming Related Coursework: Intro to Computer Systems (C); Foundations of SWE (Typescript); Principles of Software Construction (Java+Typescript); Principles of Functional Programming (SML)
- Math-Related Coursework: Great Ideas in TCS; Probability Theory for CS; Algebraic Structures; Vector Calculus for CS; Concepts of Mathematics; Matrices and Linear Transformations

Colegio Nueva Granada   Bogotá D.C., Colombia
American High School Diploma & Colombian Bachillerato Diploma   June 2022

SKILLS

Programming
- C Programming, Carnegie Mellon University
- Python, Carnegie Mellon University
- Java, Carnegie Mellon University
- Typescript, Carnegie Mellon University
- SML, Carnegie Mellon University
- R Programming, from Johns Hopkins University

Languages
- Native speaker of English and Spanish

WORK EXPERIENCE

CMU CS Academy – *Platform providing cost-free, web-based, engaging computer science curriculum*   Pittsburgh, PA, USA
for high school students. Gives HS teachers training and technical assistance. All courses taught in   Jan 2023 - Present
Python
Research Assistant, Spanish and Outreach team
- Worked part-time during academic school year and full-time during Summer 2023
- Led several in-person and virtual professional development sessions for teachers in Latin America and Spain. Helped translate a significant portion of the course material to Spanish (Spanish team)
- Conducted various professional development sessions for teachers in the U.S. (Outreach team)

Quantil S.A.S – *consulting firm focused on applied mathematics and data science advisory services*   Bogotá D.C., Colombia
Summer intern   June - July 2021
- Designed a program enabling end customers to analyze the behavioral patterns and sentiment of a target population, using social networks data from Twitter
- Compiled and extracted useful data using programming languages such as R Programming and Python
- Presented the final project to the head of the company and top management

PROJECTS

Santorini Game Implementation (Java + Typescript)   Fall 2023
- Analyzed and Designed the core functionality of the Santorini board game, implementing both backend and frontend components.
- Developed the backend in Java, focusing on game logic and server-side operations.
- Created the front end using React and Typescript, designing interactive and user-friendly interfaces for game interactions.
- Developed UML Diagrams including: Domain Model to represent key game concepts; System Sequence Diagram, to detail user-system interactions; Behavioral Contract, to outline preconditions and postconditions for game interactions; Object Model, to describe classes, interfaces, associations, attributes, and methods
- Wrote comprehensive Unit and Integration Tests to validate individual functions and sequences of game actions, ensuring a robust and error-free user experience.
- Integrated the project with GitHub Actions for continuous integration, maintaining high code quality and successful builds.

Malloc Implementation (C-programming)   Fall 2023
- Designed and implemented a memory allocator using explicit free lists and segregated lists to manage free memory blocks efficiently.
- Engineered a fit algorithm to optimize for both memory utilization and throughput.
- Implemented splitting and coalescing of blocks to minimize internal and external fragmentation, enhancing memory utilization.
- Conducted rigorous testing and debugging using GDB to ensure robustness, successfully handling edge cases, and preventing memory leaks or corruption.