ALJON A. NOVELO

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TECHNICAL SKILLS

Languages & Frameworks: Assembly, C, Java, R, Python, JavaScript (Node.js, Express.js, React.js), Flutter, C++, VHDL

Databases: PostgreSQL, MongoDB, MariaDB, Firebase

Tools & Platforms: Github, Postman, Figma, GTKWave

TECHNICAL PROJECTS

Context-Free Grammar Simulator | *March 2025*
- Developed a command-line tool that performs step-by-step derivation of strings based on user-defined grammar productions.
- Enabled input parsing via file or console with clear derivation output, assuming unambiguous grammars and valid strings.

Color-Based Image Segmentation | *December 2024*
- Implemented a K-means clustering algorithm in C++ to segment images based on dominant color clusters.
- Processed sequential JPEG frames to isolate and highlight non-dominant color regions.

Computer Architecture Simulation | *September 2024*
- Designed and simulated combinational and sequential circuits using VHDL, including test benches for validating logic behavior.
- Evaluated instruction performance and system efficiency through CPI analysis, speedup computations, and execution time comparisons.
- Conducted benchmark testing to analyze real-world CPU performance, using emulator tools and hardware specification assessments.

Institute Room Reservation System | *June 2024*
- Implemented dynamic data tables, notifications, and booking workflows for real-time interaction.
- Built responsive UI components, including calendars, carousels, and filters, ensuring seamless navigation.
- Integrated admin and user-specific features, such as class schedules, announcements, and reports.

Networking Game | *May 2024*
- Implemented real-time player interactions using Java sockets for seamless communication.
- Designed an interactive JavaFX UI, including splash screens, game scenes, and responsive controls.
- Utilized multithreading to optimize network performance and ensure responsive gameplay.

LOLCODE Language Interpreter | *January 2024*
- Built a parser that constructs an abstract syntax tree to validate and process LOLCODE programs.
- Implemented execution logic for core LOLCODE constructs, including variable assignments, conditionals, loops, and arithmetic operations.

EDUCATION

University of the Philippines - Los Baños
Bachelor of Science in Computer Science | *2021 - Present*

San Pablo City Science Integrated High School
STEM Strand | *2015 - 2021*

LEADERSHIP & INVOLVEMENT

Kapatirang Pitong Lawa sa UP Los Baños
Socio-Cultural Committee Member
| *August 2024 - Present*
- Led organization's participation in UPLB February Fair 2025

Educational Committee Member
| *August 2023 - June 2024*
- Assist in projects and activities concerning the educational sector of San Pablo City

Socio-cultural Committee Office-in-Charge
| *February - August 2023*
- Initiated inter-organizational engagements and external operations
- Served as the focal person of the invitational proceedings of the organization

Socio-Cultural Committee Member
| *August 2022 - February 2023*
- Assisted in organizing internal activities, aiming to strengthen camaraderie among the members
- Involved in logistics of all activities of the organization

Membership Committee Member
| *March - August 2022*
- Assisted in overseeing the social welfare of the members and consolidating the organization

UPLB Ugnayan ng Pahinungod
Volunteer
| *March 2023 - Present*
- Organized and facilitated community engagement activities, volunteer training camps, and team-building activities

UPLB Street Jazz Dance Company
Logistics Committee Member
| *October 2022 - Present*
- Arranged transportation and logistics for events
- Managed procurement and maintenance of properties

UPLB College Of Arts and Sciences Freshman Council
External Affairs Committee Co-Head
| *November 2021 - October 2022*
- Led external engagement and event organization, demonstrating management and external communication