Daniel Dia

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Profile

First-year Computer & Communications Engineering and Pure Mathematics dual degree student at the American University of Beirut. Driven to apply a strong theoretical foundation in mathematics and computer science to solve complex, real-world problems. Eager to contribute a community-focused mindset and advanced technical skills to impactful projects within AUB societies.

Education

American University of Beirut (AUB) **Aug 2025 - Expected May 2030**
B.E. in Computer & Communications Engineering
B.S. in Pure Mathematics (Expected Dual Degree)

Experience

Full Stack Software Engineering Intern *DevForces* July 2025 - Aug 2025
- Built and contributed to responsive, accessible front-end components for NGO LiveLunger's main website and volunteer portal using HTML/CSS and Tailwind CSS.
- Developed secure RESTful APIs and back-end services to manage user data and projects.
- Collaborated with the client to translate requirements into technical specifications and features.

Volunteer Contributor & Editor *Wikipedia (Wikimedia Foundation)* Dec 2023 - Present
- Authored and enhanced over 150 technical and academic articles, resulting in over 1.1 million reader views and earning 70+ commendations from the editorial community.
- Specialized in overhauling complex content in computer science, mathematics, and engineering, often architecting substantial article expansions (25,000+ characters).
- Ensured adherence to the highest editorial standards across English, Russian, French, and Spanish Wikipedia platforms.

Projects

TRNG-PassGen: Hardware-Based Secure Password Generator *Personal Project*
- Designed and built a full-stack system for generating cryptographically secure passwords from physical randomness, featuring a C++ powered ESP32 device and a Rust-based desktop client.
- Implemented on-device entropy harvesting from an MPU-6050 gyroscope and oscillator jitter, with AES-128-CBC encryption for secure data transmission over a self-hosted TCP server.
- Developed a cross-platform GUI with the Iced framework (Rust), enabling remote device control and QR code generation for mobile use.

DynamiXplore: Dynamical Systems Simulation Framework *Personal Project*

- Engineered a high-performance Python package pairing a user-friendly interface with a powerful & memory-safe Rust core, using PyO3 for seamless integration into the scientific Python ecosystem.
- Implemented a suite of robust numerical integrators (Euler, RK4, adaptive RK45) to efficiently generate and analyze long, detailed system trajectories.
- Developed advanced analysis tools for characterizing system dynamics, including full Lyapunov spectrum calculation (Benettin), permutation & approximate entropy, and invariant measure computation.
- Improved and maintained in collaboration with Dr. Theresa Honein of the AUB Mechanical Engineering department (MSFEA).

Skills

Programming	Python, Rust, C/C++, Bash/Shell Scripting, LaTeX
Frameworks & Libraries	NumPy, Pandas, PyTorch, Iced, Tokio, Tailwind CSS
Tools & Platforms	Git, GitHub (Actions for CI/CD), GNU/Linux, EasyEDA
Hardware & Embedded	ESP32 Microcontrollers, Digital Circuit Design, PCB Prototyping, Soldering
Core Competencies	Data Structures & Algorithms, Machine Learning, Information Theory, Dynamical Systems, Numerical Methods, Cryptography, Nonsmooth Dynamics, Computer Architecture, Agile Methodologies

Honors & Awards

AUB Early Merit Scholarship Oct 2024

Awarded to a select group of early applicants in recognition of outstanding academic achievements and leadership potential.

LIFE Lebanon Scholar July 2025

Selected for dedication to academic excellence, joining a global network that empowers Lebanese talent through mentorship.

Licenses & Certifications

LFS101: Introduction to Linux – The Linux Foundation

LFD123: Open Source RT-Thread RTOS on RISC-V – The Linux Foundation

LFD103: A Beginner's Guide to Linux Kernel Development – The Linux Foundation

Financial Management Specialization – University of Illinois Urbana-Champaign

Languages

Native/Bilingual	English, French, Russian, Arabic
Limited Working	Spanish
Elementary	(Mandarin) Chinese

Last updated: September 20, 2025