Theresa Abi Rached

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Profile

Highly driven double-major in **Computer Science** and **Pure Mathematics** with research experience in Non-Terrestrial Networks (NTNs), 5G, and NOMA techniques. Strong technical foundations in networks, cybersecurity, cloud systems, and applied mathematics. Demonstrated leadership across university-wide organizations, including serving as **President of the CS Student Society**, Head of Sponsorship for the Athlete Society, and Team Manager of the AUB Rugby Varsity Team.

Education

American University of Beirut
Bachelor of Science in Computer Science
Key courses: Software Construction, Algorithms, OOP, Functional Programming, Software Engineering, Databases, Computer Networks, Cybersecurity, Graduate Computer Networks, Cloud Computing

American University of Beirut
Bachelor of Science in Pure Mathematics
Key courses: Multivariable Calculus, Linear Algebra, Real Analysis, Abstract Algebra, Complex Analysis, Probability, Differential Equations, Numerical Computing, Differential Geometry, Topology, Fourier Analysis

American University of Beirut
Minor in International Law
Key courses: International Politics, Human Rights, International Organizations, Public International Law

College Notre Dame de Jamhour
High School Diploma with High Honors (French Baccalaureate, Economics/Math)

Projects

Collatz Conjecture Simulation (Python)
- Built a computational simulation demonstrating the behavior and complexity of the Collatz Conjecture using dynamic visualization.

Reliable UDP Protocol (Java)
- Implemented a Reliable-UDP protocol handling packet loss, delays, and reordering through custom retransmission and acknowledgment mechanisms.

HireMyNurse Mobile App (Flutter)
- Built a nurse-client matching app using geolocation and preference filtering; backend built using C# and .NET.

Resto Full-Stack Website
- Developed a PHP/MySQL platform with reservations, menu management, and dynamic client-side components.

Custom Raspberry Pi Kernel
- Designed a lightweight kernel with encrypted memory, custom allocators, and low-level data structures for embedded systems.

NOMA Research
- Simulated Non-Orthogonal Multiple Access with beamforming to optimize power allocation and reduce interference.

NTN/5G Research Assistant
- Conducted research under Prof. Maurice Khabbaz on NTNs and 5G advancements in Lebanon.

TicketMaster+ Web App
- Designed a ticketing platform with AWS authentication, payment integration, and AI-based fraud detection.

Moodle Administrator, AUB Clubs & Societies
- Managed and developed Moodle pages for student clubs to streamline communication and resource distribution.

Leadership & Activities

President, CS Student Society	Jun 2025–Present
Head of Sponsorship, Athlete Student Society	Aug 2025–Present
Head of Sponsorship, AUB campus Yearbook	Sept 2025–Present
Sponsorship and Events Consultant, Lebanon Rugby	Sept 2025–Present
Tech Coordinator, AUBMUN	Oct 2025–Present
Team Manager & Player, AUB Rugby Varsity Team	Aug 2023–Present
Rugby Player, Aconites Rugby Club	May 2025–Present
Head Volunteer, Rayon de Tranquilité	Aug 2019–Present
Events Manager, CS Student Society	Aug 2024–Jun 2025
Junior Editor, Outlook Newspaper	Mar 2025–Jun 2025
Partnership Assistant, AUB Outdoors	Feb 2024–Jun 2025
Rapporteur, Beirut Model United Nations	Mar 2024–Aug 2024
Junior Representative, Math Student Society	Aug 2023–Aug 2024

Internship

Network Engineer Intern, Blom Bank, Beirut	Jul 2024–Sep 2024

Worked on network infrastructure and operations to optimize enterprise-wide connectivity and reliability.

Skills

Programming: C++, Java, C, Python, JavaScript, C#, Flutter
Technologies: AWS, MySQL, NoSQL, .NET, React.js, Git/GitHub, Linux, Networking, Functional Programming
Soft Skills: Leadership, Communication, Problem-solving, Attention to detail, Teamwork
Languages: Arabic (native), English (fluent), French (fluent)