

Elias Michael Badine

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Professional Summary

Systems Engineering graduate specializing in artificial intelligence, machine learning, and systems research, with hands-on experience in semi-supervised learning, active learning, and data labeling automation. Passionate about AI-driven educational systems and pursuing advanced research in AI applications for learning optimization. Planning to pursue a PhD specializing in AI applications in education to further develop adaptive and personalized learning systems.

Education

Antonine University – Baabda, Lebanon 2019–2025

B.E. in Computer and Communications Engineering (Systems and Networks Path)

- **Final Year Project:** AI-driven Recommender System for improving academic performance using department records.

42Beirut – Software Engineering Student Jun 2024 – Jun 2025

- Immersive program in system engineering, problem-solving, and low-level programming.
- Strengthened skills in algorithms, data structures, and software architecture.

Lebanese University – Faculty of Fine Arts and Architecture 2015–2018

Graphic Design

Lycée Officiel de Kfarshima – High School Diploma 2012–2015

Saint Coeur Hadath – Brevet 2011–2012

Skills & Technical Proficiencies

Programming: Python, C++, Java, Bash, PHP, SQL, HTML, CSS, jQuery, OmniC++

AI & ML Frameworks: PyTorch, scikit-learn, TensorFlow, SMOTE, Neural Networks, Active Learning, Semi-Supervised Learning, Autoencoders, Bayesian Optimization

Web Development: Next.js, Supabase, Vercel, Jitsu (API/meetings), Node.js

Networking: CCNAV7 Certified – Introduction to Networks, Switching, Routing, Security, and Automation

Cloud & Databases: AWS, VMware, Oracle Cloud, Hyper-V, Oracle, PostgreSQL, MS SQL Server

Software Tools: Microsoft Office, Adobe Creative Suite (Illustrator, Photoshop, Premiere), AutoCAD

Research Experience

Research Assistant – RASMI (Rapid-Smart Idea Program) Feb 2026 – Present

Antonine University

- Conducting research on transfer learning for cognitive load estimation (CLE) in AI-driven educational systems.
- Developing domain adaptation pipelines to transfer representations learned from controlled multi-modal datasets to real educational environments using non-invasive proxies.
- Aiming to enable scalable, ethically compliant CLT-aware educational AI without intrusive data collection.

Research Intern – RASMI (Rapid-Smart Idea Program) Jan 2025 – Jul 2025

Antonine University

- Conducted funded research on semi-supervised machine learning to address large-scale data labeling challenges.
- Collaborated with faculty researchers under a university-funded AI innovation initiative.
- Authored and published a paper to *Knowledge and Information Systems (Springer Nature)*, DOI: [link](#).

Work Experience

Potech – SOC Analyst Intern (Hybrid)

Jun 2024 – Sept 2024

- Gained practical exposure to cybersecurity monitoring, network topology analysis, and protocol encryption.
- Assisted in identifying and mitigating network vulnerabilities in enterprise systems.

Areeba – IT Intern

Jun 2024 – Jul 2024

- Supported IT help desk operations, network management, and Unix system administration.
- Contributed to internal cybersecurity awareness and documentation.

Intensive Training – 42Beirut

Feb 2024 – Mar 2024

Early Experience (2015–2019)

Cashier – Max (Landmark Group) / Cashier – Crunchy / Waiter – Parcours des Saveurs / DJ – Wishes Comes True / Video Editing & Filming – Wide Broadcast
(Contributed to interpersonal, responsibility, and teamwork skills.)

Projects

SALIENT Framework (2025)

Semi-supervised learning system combining self-supervised representations, active learning, and neural adaptation.

- Reduced labeling cost by 77.5% while maintaining 92% accuracy on 36K+ academic records.
- Paper published at Springer Nature (KAIS Journal) - [doi](#).

PhD Progress Tracker (PhDPT) – Next.js, Supabase, Jitsu, Vercel

Web platform for doctoral research management integrating AI chat, milestones, meetings, and secure data storage.

URL: [phdpt.com](#)

Petri Nets Simulator – JavaScript, SVG, HTML/CSS

Interactive Petri Net simulation tool supporting traditional (T-Model) and smart (S-Model) logic.

URL: [lallousse.github.io/PetriNetsSimulator](#)

AlgoViz – JavaScript, SVG

Visualization tool for graph algorithms (Dijkstra, Prim, Kruskal, Bellman-Ford).

URL: [lallousse.github.io/AlgoViz](#)

Other Technical Projects:

Deployed OpenStack with DevStack on Ubuntu / Simulated buffer overflow attacks (Kali Linux & Windows 10) / Installed and configured mail server, MySQL-Galera, PostgreSQL, Nextcloud, OTRS, ISP-Config, Zammad / Built AI system for voice gender recognition / Designed a 3-tier e-commerce website using PHP and MySQL / Developed Student Information System (SIS) for Antonine University in C++

Languages

Arabic – Native — English – Proficient — French – Intermediate