

Hamza ElMokhtar Shili

Houston, TX 77005 | (346) 475-4664 | hs65@rice.edu | [in/hamza-elmokhtar/](https://in.hamza-elmokhtar/) | github.com/HamzaShili65

EDUCATION

Rice University, *Houston, TX*

May 2025

B.S. Computer Science & B.A. Economics; Minors in Data Science and Financial Modeling GPA: 3.80/4.00

Relevant Courses: Machine Learning, Concurrent Programming Design, Parallel Programming, Database Systems, Algorithmic Robotics, Probability and Statistics, Linear Algebra, Quantum Computing

SKILLS

Programming: Python (Expert), Java & C (Proficient), C++, Go, TypeScript, HTML, CSS, JavaScript, Node.js

Databases & Tools: PostgreSQL, MongoDB, Neo4j, Linux/Unix, Docker, Git, REST APIs

Frameworks & Data Science: PyTorch, JUnit, Unittest, NumPy, Pandas, Scikit-learn, Tensorflow, Matplotlib

WORK EXPERIENCE

Office of the Dean of Undergraduates, Rice University, *Houston, TX*

Jun 2023 – Oct 2023

Software Development Intern - Data Management

- Enhanced expense tracking efficiency by 40% across 11 residential colleges by designing and launching a web application using **JavaScript** and **Firestore**, replacing outdated Google Form systems
- Reduced data handling time by 25% by authoring and optimizing **Node.js** server-side functions and database queries, which automated transaction emails and streamlined data processes
- Achieved 90% user satisfaction with the launch of the beta version, and 95% preference over the prior one

Oshman Engineering Design Kitchen, Rice University, *Houston, TX*

Jun 2022 – Aug 2022

Software Engineering Intern - Engineering Design

- Integrated thermal cameras and vitals sensors into the SMART HELMET system to provide soldiers with unique vibrational cues via actuators, enhancing their situational awareness by 30%
- Improved cue differentiation by 40% by developing a **Python** library for threat detection methods
- Designed a testing suite using **Unittest**, to evaluate the code on real hardware, with 98% coverage
- Boosted system time and space performance by 30% by refactoring the code design and implementation

PROJECT EXPERIENCE

Owl M3ssag1ng Application (Go, HTML, CSS, TypeScript (TS), REST APIs)

Sept 2023 – Dec 2023

- Developed app's NoSQL db in **Go**, upping efficiency by 30% with **REST APIs** & concurrency techniques
- Crafted app front end, increasing user engagement by 25% through MVC design and accessibility features
- Optimized performance by 20% with concurrency management, leveraging **TS's** asynchronous capabilities

Emotion Prediction from Audio Files (Python, Librosa, Scikit-learn, Tensorflow)

Apr 2023 – May 2023

- Trained SVM, and CNN models on a 10,000-sample Kaggle dataset for emotion detection
- Extracted MFCCs and chroma features from audio using **Librosa**, achieving an accuracy of 90%
- Employed k-fold cross-validation that led to a 5% boost in prediction accuracy over baseline models

FEAT - Feedback & Evaluation via Automated Tests (Java, JUnit)

Aug 2022 – Dec 2022

- Constructed data-driven automated tool using **Java** and **JUnit** to generate test cases for Python programs and offer evaluative and formative assessments, improving student debugging efficiency by 70%
- Reduced the workload of instructors by 30%, freeing up time for personalized feedback and teaching

LEADERSHIP EXPERIENCE

Oshman Engineering Design Kitchen, Rice University, *Houston, TX*

Electronics & Computer Lab Lead

Aug 2022 – Jan 2023

- Created Embedded Systems workshop, enhancing electronics proficiency for 150+ participants
- Navigated semiconductor shortage, designing a database to manage 50+ processors and 100+ electronics
- Collaborated with fellow leads to recruit and mentor 10+ new lab assistants

Other: COMP 382 (Advanced Algorithms & Data Structures) Teacher Assistant, President of Rice MENA Student Association, Head of Marketing at Rice Blockchain Club, International Orientation Advisor