

Bilal Shihab

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EDUCATION

UNIVERSITY OF TEXAS AT AUSTIN

Austin, TX

Bachelor of Science in Biomedical Engineering, Computational Track

May 2027

- **Organizations:** Biomedical Engineering Society, Texas Guadalupe, Texas Engineering World Health
- **Relevant Coursework:** Intro to Computational Engineering Design, Intro to Computing, Introduction to Python & C++, Statistics, Intro to Embedded Systems, Circuits, Signals, Biomechanics, Numerical Methods, Differential Equations & Linear Algebra

SKILLS AND INTERESTS

- **Technology/Skills:** Python, C, C++, ARMv6-M Assembly, MatLab, R, Jupyter, Embedded Systems Programming, Google Cloud, Pandas, Matplotlib, Android Studio/IntelliJ, Pytorch, Keras, Machine Learning, SolidWorks, Fusion 360, Captum, Optuna,
- **Languages:** Arabic (Native), French (Beginner)

EXPERIENCE

LONGHORN NEUROTECH

Austin, TX

Edge AI Team Lead

Sep 2025 - Present

- Promoted to lead the new Edge AI team, directing a group of student engineers on the initiative to optimize neural networks for deployment on embedded systems like Raspberry Pi.

AI/ML Developer

Sep 2024 - Aug 2025

- Collaborated on developing machine learning models for Brain-Computer Interfaces (BCI) aimed at controlling a prosthetic arm, leveraging advanced techniques such as CNNs and Capsule Networks.
- Explored and implemented various interpretability techniques, including Optuna for hyperparameter optimization, to improve model transparency and enhance the reliability of BCI applications.

RECANZONE LABORATORY, UC DAVIS

Davis, CA

Research Intern

Jun 2025 - Present

- Authored a pull request for a new [3D feature visualization UI](#) to the open-source phy neuroscience software, designing an interactive 3D-to-2D projection pipeline with full camera controls for intuitive exploration of complex neural spike data.
- Engineered the mathematical model for the 3D viewer, enabling intuitive real-time data rotation through direct user mouse control.

FUNCTIONAL OPTICAL IMAGING LAB, UT AUSTIN

Austin, TX

Researcher and Programmer

Sep 2023 - Present

- Developed a comprehensive [Laser Speckle Analysis UI](#) using Python and PySide6, integrating real-time image capture and analysis with Basler cameras and Arduino control for auto laser intensity adjustment.
- Enhancing precision in speckle pattern evaluation and optimizing laser current recommendations through advanced histogram, pixel count, and contrast analysis methods.
- Optimized contrast adjustment script, rewriting it from MATLAB to Python, enhancing the system's efficiency.

TRY ALADDIN

San Jose, CA

AI Intern

Jun 2025 - Aug 2025

- Designed an automated social media content pipeline using n8n, designing a workflow for AI agents to scrape product data, generate Instagram content, and interface with the Facebook API.
- Containerized the automation workflow and its dependencies using Docker, creating a reproducible development environment.
- Integrated a Large Language Model via its REST API within n8n, responsible for transforming product data into social media posts.

PROJECTS

ECG PCB PROJECT

Austin, TX

- Collaborated in a team to develop an Electrocardiogram PCB using Autodesk Fusion 360 for physiological signal monitoring.
- Selected components and designed the schematic layout for the signal amplification and filtering stages of the circuit.
- Led the project workflow by designating tasks to group members and optimizing the allocation of resources to ensure the timely completion of the project.

HEALTHCARE AI PROJECT

Austin, TX

- Creating a system for [uploading and managing DICOM files](#) using Google Cloud Healthcare API.
- Implemented a Pub/Sub notification system to monitor DICOM uploads, enabling real-time data processing.
- Configured Google Cloud resources, including DICOM stores and Pub/Sub topics, to support healthcare data workflows.
- Planned integration of AI-powered analysis using Google MedGemma for DICOM images to enhance diagnostic capabilities.

LAUNCH KIT (SAAS PROJECT)

Austin, TX

- Spearheading the development of [Launch Kit](#), an AI-powered platform designed to streamline college and career navigation for students by providing college recommendations and automating personalized professional networking.
- Architecting and implementing a scalable microservices ecosystem where autonomous AI agents built with Python communicate and collaborate to handle complex tasks like data analysis, content generation, and quality assurance.
- Integrating Google's Gemini API to power the core analytical capabilities of each agent and leveraging third-party services like ScraperAPI for robust, real-world data extraction from public web sources.