Ali Elsabbouri

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EDUCATION

Wayne State University **Detroit, MI**
Bachelor of Science in Computer Science *Expected Dec 2025*

- GPA: 3.93/4.0
- Courses: Data Structures and Algorithms, Computer Organization, Programming Languages, Computer Security, Software Engineering, Web Systems, User Interface, Operating System, App Development for Entrepreneurs, Embedded Systems, Machine Learning, Deep Learning, Intro to AI.

EXPERIENCE

CAREERCRACKER – WAYNE STATE UNIVERSITY - GitHub **Detroit, MI**
Software Engineer *Jan 2025-May 2025*

- Collaborated in a team to design and develop an AI-driven interview preparation platform using **React**, **Django**, and **Docker** for a containerized full-stack environment.
- Integrated the **O*NET API** to retrieve real-world job descriptions and required skills, allowing users to receive accurate, role-specific interview questions. Utilized **OpenAI API** to generate intelligent, dynamic interview questions and feedback based on selected job roles.
- Implemented RESTful backend endpoints in Django to manage authentication, question generation, and user progress tracking. Managed **PostgreSQL** database to securely store user credentials, interview history, and generated questions and answers.

CHESS GAME – INDEPENDENT PROJECT - GitHub **Detroit, MI**
Software Developer *September 2024*

- Designed and developed a full **Python** chess game using **Pygame**, applying object-oriented programming to build modular classes for the board, pieces, rules, and input handling, ensuring a maintainable and scalable structure.
- Created a custom game engine that enforces all chess mechanics—legal moves, check, checkmate, stalemate, castling, and pawn promotion—supporting two-player gameplay on the same device for local matches.
- Implemented an interactive graphical interface with real-time visual feedback and added LAN hosting functionality using **Socket** and **Threading**, enabling players to connect and compete across the same local network with smooth performance.

IMAGE DENOISING – WAYNE STATE UNIVERSITY - GitHub **Detroit, MI**
Deep Learning Engineer *Jan 2025-May 2025*

- Built and trained a U-Net convolutional neural network in **PyTorch** for image denoising using the DIV2K high-resolution dataset, generating noisy–clean image pairs with progressively reduced Gaussian noise through curriculum-style training to improve learning stability and performance.
- Implemented a hybrid loss function combining MSE and SSIM for perceptual quality optimization, achieving clear visual reconstruction and robust generalization; automated model saving, validation, and inference to produce denoised outputs from unseen images.

DISTANCE DETECTION SYSTEM **Warren, MI**
Embedded Systems Engineer *July 2024*

- Engineered an Arduino-based ultrasonic distance measurement system using the HC-SR04 sensor, integrating real-time signal processing, serial data monitoring, and precise timing control through pulse-echo measurement and interrupt-driven logic; optimized power efficiency and accuracy via custom calibration and implemented modular **C++** code for scalable integration into future IoT and robotics applications.

SKILLS

- **Experienced:** Python, C, C++, Java, Swift, TypeScript, JavaScript, SQL, HTML, CSS, REST APIs, Flask, Jinja2, Go, React, Vue, GCC, GDB, Vim, Cron, Networking
- **Software & Tools:** Docker, Linux, Git, Visual Studio, VS Code, Xcode, Unity, Arduino, Render, Vercel, Neon, AWS Cloud, PostgreSQL, Ansible, RabbitMQ
- **Implemented**: Computer Vision, Machine Learning, Postfix Calculator, Euchre, Backtracking Puzzle, Graph Search Algorithms, AVL Tree, Priority Queues, Pairing Heap, MapReduce