Amal Alkhalil

amoula.alk@gmail.com | 515-357-8302 | http://www.linkedin.com/in/amal-alkhalil

Objective
Seeking a Summer 2026 Electrical Engineering internship at John Deere to apply embedded systems, sensing, and hardware–software integration skills in real-world engineered systems.

Education
Iowa State University | Ames, IA
Bachelor of Science in Software Engineering
GPA: 3.46 | Expected Graduation: May'27

Engineering Projects
Small Humanoid Robot (Ongoing Project)
Raspberry Pi, Python, Sharp3D, 3D Printing, Motors, Sensors
- Designed and built a ~30 cm humanoid robot from scratch; modeled mechanical components in Sharp3D and fabricated the chassis via 3D printing
- Implemented a motorized differential drive system with obstacle detection, enabling autonomous navigation at ~0.25 m/s
- Integrated Raspberry Pi for real-time motor control, sensor input, and system coordination
- Designed animatronic eye hardware using 3 servos (horizontal, vertical, 90° eyelid actuation) for controlled, precise motion
- Architected a multi-version system roadmap from autonomous mobility (V1) to vision-based interaction and animatronic features (V2–V3 ongoing)

Cat Detection & Automated Door System
Raspberry Pi 4, OpenCV, Python, PIR Sensor, Actuators
- Developed a real-time embedded vision system using a Raspberry Pi camera and OpenCV DNN models
- Improved system reliability to ~85% detection accuracy across three iterative development cycles
- Achieved zero false positives, prioritizing safety and preventing unintended actuation
- Integrated PIR motion sensing to reduce unnecessary computation and power usage
- Designed actuator control logic enabling automated physical response within ~1–2 seconds

Professional Work Experience
Co-founder - Zuhoor's Scent | Ankeny, IA
Co-founded and managed small business | Dec'25 – Present

- Co-founded and launched a physical consumer product line with 3 initial products
- Drove ~30% sales growth in one month through targeted social media strategy
- Conducted customer testing via in-person sampling and feedback-driven iteration
- Led 2 logo redesigns and 2 packaging size changes to improve usability and appeal
- Built and managed an e-commerce website and cost-based pricing models

Al Izza | Niamey, Niger
Management of Transport Data Intern | March'18 – March'18
- Audited passenger and ticketing data for 2 buses per day, validating 100+ records daily

- Built an Excel-based data validation workflow using filters, sorting, and conditional formatting
- Identified and resolved ~5–10 inconsistencies per day, preventing routing and scheduling errors
- Improved system reliability by ensuring alignment between traveler, seat, and schedule data prior to departure

Relevant Skills
Development: C, Python
Platforms: Xcode, Cygwin, Shapr3D
Environments: MacOS, Windows, Lunix
Languages: French (Native)

Leadership & Activities
NoorFit Club, *Founder* | Jan'26 – Present
National Society of Black Engineers (NSBE), *Member* | Jan'25 – Present
Sales Engineering Club (SEC), *Member* | Jan'25 – Present
Wind Energy Student Organization (WESO), *Member* | Jan'25 – Present