FERRIS MOHAMMED

PROFESSIONAL SUMMARY

Software engineer with 6 years building production-grade systems across industrial IoT, AI/ML, biomedical research, and digital media operations. Specializes in end-to-end delivery spanning real-time ML inference pipelines, edge-to-cloud architectures, LLM-powered automation, and operator-facing tooling. Has shipped across verticals including vehicle wash automation, neurodegenerative disease research, and music catalog operations, working comfortably at the intersection of software, hardware, and AI.

EDUCATION

Bachelor of Science, **Computer Science**, **12/2020**
Florida International University - Miami, FL

WORK HISTORY

Founder / Principal Software Engineer, 08/2025 to Current
FullStack Ferris Solutions LLC - Remote

- Architected and delivered end-to-end automation platform for Sony Music Latin's digital operations, reducing catalog cycle time by ~85% through standardized pipelines, QA gates, and repeatable execution.
- Built Data pipelines (**Pandas**, **NumPy**, **Jupyter**) to ingest, normalize, validate, and generate bulk-ready metadata templates for catalog publishing operations at scale.
- Designed and deployed **FastAPI** microservices exposing reusable endpoints for metadata enrichment, **SEO/VSEO** optimization, export formats, and audit-friendly diffs across catalog workflows.
- Implemented production LLM pipeline using **LangGraph** and **ChromaDB**, **RAG** to generate template-grounded titles, descriptions, and tags from existing catalog data — including classification, extraction, and validation layers to catch hallucinated output before operator review.
- Building operator-facing review, approval, QA, and reporting dashboards in **Next.js** to productize internal operations workflows.

R&D Engineer, 08/2023 to 05/2025
Sonny's Enterprises - Tamarac, FL

- Designed and shipped real-time ML inference pipelines using **NVIDIA DeepStream**, **GStreamer**, **OpenCV**, and **PyTorch** for vehicle detection and wash automation across production sites — operating under strict latency constraints on edge hardware.

CONTACT

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SKILLS

Distributed Systems & Cloud

- AWS: Lambda | API Gateway | DynamoDB | OpenSearch | S3 | Greengrass
- Infra: Kubernetes | Docker | Redis | RabbitMQ | Kafka
- Arch: Microservices | Event-Driven | Edge-to-Cloud Integration
- CI/CD: GitHub Actions | Jenkins | Harness | FluxCD

AI / ML

- Frameworks: PyTorch | TensorFlow | Scikit-learn
- Vision: OpenCV | NVIDIA DeepStream | OCR / LPR | Real-Time Inference
- GenAI: LangChain/LangGraph | ChromaDB | RAG | LLM Integration | MCP
- AI Ops: Prompt Engineering | Context Engineering | Evals
- AWS AI: SageMaker | Bedrock | Rekognition
- Edge AI: TensorRT | ONNX | Model Deployment on Edge

Full-Stack Engineering

- Backend: Python (FastAPI, Flask, Django) | Node.js | Golang

- Iterated over **OCR** and license plate recognition (LPR) workflows using **OpenCV** and **PyTorch** to power subscription validation and personalized wash logic, balancing accuracy, speed, and edge compute constraints.
- Architected and deployed AI-enabled microservices on **AWS** (**Lambda**, **API Gateway**, **DynamoDB**, **OpenSearch**) integrating edge detection signals with cloud routing and decisioning services.
- Integrated industrial controllers and PLCs (**WAGO, Schneider**) and field IO (**MOXA**) via **Modbus, OPC UA, MQTT**, improving device communication and control loops.
- Developed cloud-connected service layers (**FastAPI, Node.js**) enabling secure data exchange between edge devices and operator tooling.
- Built operator-facing control panels in **React, Electron, Next.js** for live guidance, monitoring, and operational decisioning.
- Built low-latency streaming/recording workflows with **FFmpeg, RTSP, WebRTC, WebSockets** for live + playback video in production environments.
- Automated and standardized provisioning for Linux edge fleets (**CentOS, AlmaLinux**) using **Kickstart + RPM packaging**, improving deployment consistency.
- Supported hybrid edge infrastructure using **AWS Greengrass, Azure IoT, Docker, Kubernetes**, improving deployability and operational stability across sites.
- Improved event responsiveness with **Redis caching + RabbitMQ messaging** for real-time automation triggers.
- Integrated with **Golang-based Device Manager services** to support secure device identity verification/authentication in an edge-to-cloud architecture.

Biological Software Developer, 02/2021 to 11/2022
Gateway Institute For Brain Research - Davie, FL

- Partnered with pharmacists, lab scientists, and mathematicians to build data-driven web tools for **neurodegenerative disease research**.
- Developed interactive lab simulation platforms using **React**, **D3**, **Three.js**, and **Flask** to visualize experimental outcomes and accelerate drug efficacy testing.
- Built RESTful Flask apps integrating internal and third-party APIs; managed data with **PostgreSQL**.
- Modeled patient treatment paths for Parkinson's using **Python**, **Numpy**, **Scipy**, and **Pandas** by serializing clinical data into analysis-ready formats.
- Created computational pathway models and custom visualizations to support hypothesis testing and experimental validation.
- Deployed research apps on **Google Cloud Platform** for internal and cross-institutional access.

Lead Full-Stack Developer, 06/2020 to 12/2020
FIU Department - Miami, FL

- Led a cross-platform mobile app project for dietetics and applied nutrition research, **Snackability**

- Frontend: React | Next.js | Electron | Retool
- Databases: PostgreSQL | MongoDB | MySQL | ChromaDB
- APIs: REST | WebSockets | WebRTC | RTSP | gRPC

IoT / IIoT & Industrial Automation

- Protocols: OPC UA | Modbus | MQTT | BACnet
- Hardware: PLC (WAGO, Schneider) | MOXA | NVIDIA Jetson
- Streaming: GStreamer | FFmpeg | RTSP | WebRTC
- Edge Ops: CentOS | AlmaLinux | RPM | Kickstart | Docker

Data Engineering & Analytics

- Pipelines: Kafka | Spark | Hadoop | ETL
- Libraries: Pandas | NumPy | SciPy | Jupyter

- Developed a food scoring algorithm to evaluate **nutritional value** and compared food contents with USDA standards.
- Built a search feature using local and USDA databases.
- Utilized **React-Native**, **Node.js**, **MySQL** for development stack
- Utilized **Firebase** and **Express** user-authentication and routing
- Utilized **Expo** and **Heroku** for Deployment

Software Test Engineer, 11/2017 to 11/2018
SiriusXM Satellite Radio - Deerfield Beach, FL

- Conducted regression testing and submitted observations to development team.
- Tested R&D tech Connected Car Solutions that monitor real-time vehicle location relative to other vehicles along with providing user safety features for crash alerts and collision warning.

CERTIFICATIONS

Certified AWS AI Practioner May 2026 - May 2029