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LinkedIn | GitHub | Portfolio

Professional Summary

Full-Stack Developer & AI Specialist with a strong track record of architecting and deploying enterprise-grade SaaS platforms, AI-powered automation systems, and secure cloud infrastructure. Expert in **Next.js, React, FastAPI, PostgreSQL, Docker, and Nginx**, with deep experience in scalable architecture, DevOps pipelines, and cybersecurity hardening. Skilled in **LLM integration, AI prompt design, and intelligent automation**, driving efficiency, resilience, and digital transformation across engineering teams and enterprise environments.

Skills & Competencies

- **AI / ML & Prompt Engineering**: ChatGPT API · LLM Integration · Prompt Design · Generative AI · TensorFlow · PyTorch · RAG · AI Automation
- **Full-Stack Development:** React · Next.js · TypeScript · Tailwind CSS · Node.js · Python · FastAPI · REST APIs · UI/UX Engineering
- **Backend & Databases:** PostgreSQL · MySQL · MongoDB · SQL Optimization · Data Modeling · Migrations · ORM
- **Cybersecurity & Cloud:** AWS · Azure · Penetration Testing · SIEM · Cloud Security · IAM · Encryption · Network Security
- **DevOps & Systems:** Docker · Kubernetes · Nginx · CI/CD · Linux · Terraform · GitHub Actions · Jira · Postman · Figma · VS Code
- **Soft Skills:** Leadership · Problem Solving · Collaboration · Cross-Functional Communication · Project Management

Education

B.A. in Computer Science *– University of North Carolina at Charlotte,* *Jan 2023 – Dec 2025*

Work Experience

Software Engineer – American Circuits Inc. ***Charlotte, NC | Jul 2025 – Present***

- Lead engineer for NEXUS, an enterprise-grade traveler management and workflow automation system used across manufacturing operations.
  - Designed and developed the entire platform using Next.js, FastAPI, PostgreSQL, Docker, Nginx, and secure Linux-based deployments.
  - Implemented QR/barcode-based traveler tracking, step-level workflow enforcement, audit trails, operator tracking, and real-time production analytics.
  - Reduced process delays and communication gaps across departments through automated routing and data-driven decision tools.
- Architect and developer of the ACI Dashboard, a centralized operations and analytics system for production monitoring, cybersecurity visibility, and system reporting.
  - Built microservices and automation engines using Python, TypeScript, PostgreSQL, and Docker.
  - Integrated AI-powered insights, auditing utilities, penetration testing tools, and system health monitoring into one unified interface.
- Developed ACI ChatGPT, the internal AI automation assistant used for reporting, explanation generation, task automation, and production analysis.
- Consolidated multiple PostgreSQL databases into a unified production server, improving system reliability and reducing maintenance by 40%.
- Improved system performance by 30% through backend optimization, caching logic, and AI-driven process prediction

Projects

NEXUS – The Traveler Management System (Ongoing | Project Lead | American Circuits Inc.)
The future operational backbone of American Circuits Inc.

- Leading the development of **NEXUS**, a centralized enterprise platform for traveler lifecycle management, step-based workflow automation, QC enforcement, and real-time production analytics.
- Built using **Next.js, FastAPI, PostgreSQL, Docker, Nginx**, with secure multi-role authentication and encrypted API communication.
- Implemented **QR/Barcode scanning**, operator tracking, automated routing between departments, and complete traveler audit-history reconstruction.
- Introduced **step validation logic** to reduce human error and enforce process compliance across manufacturing operations.
- Designed to eliminate paper travelers, reduce delays, standardize communication, and provide data-driven production insights across engineering, quality, SMT, and assembly.

ACI Dashboard – Enterprise SaaS Monitoring Platform ***(Project Lead | American Circuits Inc.)***

- Architected ACI's primary enterprise dashboard for **production oversight, cybersecurity insights, internal analytics, and real-time monitoring**.
- Developed microservices using **Python, TypeScript, PostgreSQL, Docker**, with modular architecture supporting efficient scaling.
- Integrated **AI-driven analytics**, anomaly detection, penetration testing tools, network health monitoring, and audit logs for compliance.
- Built role-based dashboards for managers, engineers, and executives to visualize productivity, downtime, risk, and internal KPIs.

The Serenity Living Website – Production Deployed ***(Full Ownership)***

- Independently designed, built, and deployed a high-performance real-estate/assisted living website using **Next.js, Nginx, PostgreSQL, Python**, hosted via **Vercel**.
- Managed full lifecycle: UI/UX design, backend integration, domain configuration (GoDaddy), SSL setup, SEO optimization, and ongoing performance enhancements.
- Implemented contact handling, secure data routing, and custom content management features tailored to the client's operational needs.

Supply Chain Intelligence – AI-Powered Optimization Platform

- Full-stack AI platform for **demand forecasting, supplier risk scoring, logistics optimization, and anomaly detection**.
- Built using **Next.js, Python, PostgreSQL**, and advanced ML forecasting models.
- Features include:
  - Predictive dashboards for demand/supply flow
  - Supplier performance analytics
  - Inventory deviation detection
  - Route optimization using ML-driven cost modeling
- Designed to help organizations reduce supply chain bottlenecks and optimize procurement decisions.

NeuroSmriti – AI Brain Simulation System*Designed with research applications for Alzheimer's, dementia, and cognitive impairment studies*

- AI-driven neural simulation toolkit capable of modeling **memory formation, recall degradation, and cognitive pattern loss**.
- Developed using **Python, NumPy, Matplotlib, ML-based behavioral modeling**, and mathematical simulations of neuron firing patterns.
- Includes:
  - Memory retention/decay simulations
  - Cognitive impairment modeling (inspired by Alzheimer's research)
  - Visual dashboards showing neuron activity patterns
  - Modular neural computation blocks for experimentation
- Useful for education, research, and demonstrating cognitive function loss in neurological disorders.

Transformers Flowventory – AI Inventory Optimization

- An inventory forecasting and optimization engine powered by **Transformer models**, designed for high accuracy and real-time stock prediction.
- Built with **Python, Transformers, Pandas, ML pipelines**, and business-rule automation.
- Key capabilities:
    - Demand prediction using sequence-to-sequence AI
    - Automated reorder recommendations
    - Seasonal/cyclic inventory pattern detection
    - Forecast accuracy benchmarking with ML metrics
- Helps organizations maintain optimal stock levels and reduce overstock/out-of-stock conditions.

KOSH Inventory System – Internal Inventory Management Suite

- **Full-scale inventory management platform with barcode scanning, real-time stock tracking, predictive analytics, and automated alerts.**
- **Developed using Next.js, FastAPI (Python), and PostgreSQL with modern UI/UX.**
- **Features include:**
    - **Inventory forecasting with ML**
    - **Role-based permissions**
    - **Product movement history & audit logs**
- **Low-stock alerts and automated notifications**
- **Built to support medium and large operational teams with accurate, real-time data**

Certifications & Awards

- AWS Certified Solutions Architect Associate – SAA-C03 (Concept Learning)
- Cisco CCNA 200-301 (Networking Fundamentals) (Concept Learning)
- Udemy: C++ Certification, Front-End Development Ultimate Guide
- Coursera: Java Programming (Primitive Types, Decision Making, OOP)
- Cybersecurity: Introduction to Penetration Testing, Cybersecurity 2023
- C# Certification: C Sharp Basic Certificate
- SQL for Any IT Professional – O'Reilly by Pearson (May 2025)

Reference

- **Khash Sarrafi** — Project Mentor, American Circuits Inc. khash@khash.com 860-573-5595