



Joseph Oboamah

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Summary

Full-stack and mobile software engineer with over six years of experience in developing and managing complex web, mobile, and IoT applications. As the sole developer for a decision-support platform, designed and implemented features that support hundreds of agricultural sensors and research plots, showcasing comprehensive ownership of the software lifecycle.

Skills

- Node.js
- REST APIs
- Python
- PHP
- PostgreSQL
- TimescaleDB
- PostGIS
- Firebase
- SQL Server
- JavaScript
- React
- React Native
- Expo
- Angular
- HTML
- CSS
- UI development
- Mobile releases
- MQTT
- Authentication
- Access control
- Push notifications
- Integrations
- Linux/Debian

Professional Experience

University of Nebraska-Lincoln

Graduate Research Assistant | Lincoln, NE 08/2024 to
Current

- Architected and operate backend and data services using Node.js, PHP, Python, PostgreSQL, TimescaleDB, PostGIS, MQTT, REST APIs, Firebase, and Hostinger; the largest telemetry table contains 746M+ observations collected since 2019.
- Built the complete product feature set, including irrigation scheduling, weather integrations, real-time sensor charts and alerts, GPS field maps, field journaling, soil sampling, variable-rate irrigation configuration, AI-assisted soil-moisture analysis, and push notifications.
- Sole developer, maintainer, and release owner for ACREE, a multi-tenant decision-support platform comprising React Native/Expo applications published on iOS and Android and an Angular web application for desktop users.
- Own the full software lifecycle: requirements, UX, database design, API development, testing, deployment, App Store and Google Play releases, analytics, system maintenance, incident troubleshooting, and upgrades.
- Streamlined fragmented manual processes by implementing centralized mobile and web workflows; trained users, demonstrated platform functionalities, and coordinated efforts of researchers, extension specialists, and industry collaborators.
- Managed support for 40 farmers and 15 research accounts across 50 sites.
- Designed and deployed 15 dual RGB-thermal camera systems, fabricating custom enclosures and configuring LoRa image capture and transmission at 15-minute intervals.

Pierson Wireless

Software Developer | Omaha, NE 10/2023 to 06/2024

- Co-developed a ground-up replacement for a legacy HTML/CSS/JavaScript job-operations platform, introducing

- Hostinger VPS
- Microsoft Server
- Git
- GitHub
- Agile/Scrum
- Code reviews
- Software engineering
- Database administration
- System integration
- IoT
- LoRa/LoRaWAN
- Raspberry Pi
- Arduino
- System integration

Education

M.S.

University of Nebraska-Lincoln
Lincoln, NE,
Mechanized Systems Management,
08/2026

- Thesis: “Design and Evolution of ACREE: An Extensible Multi-Tenant Architectural Framework for Production-Scale Agricultural Decision Support Systems”
- GPA: 3.986/4.000

B.S.

University of Nebraska-Lincoln
Lincoln, NE,
Computer Science; Minor in
Mathematics, 05/2023
GPA: 3.774/4.000

A.S.

Western Nebraska Community College
Scottsbluff, NE,
Computer Science, 08/2019
GPA: 3.797/4.000

Websites, Portfolios, Profiles, & Projects

- [LinkedIn](#)
- [Portfolio](#)
- <https://adluxhealthcare.com/>
- <https://brighthouseplus.com/>

React and Node.js architecture while preserving established business logic for 150+ employees.

- Engineered an administrative dashboard for user, quote, and operational record management, creating and consuming REST APIs between front-end and server-side components.
- Developed workflows for quote creation, employee task assignment, materials tracking, inventory management, and reporting, integrating file uploads, third-party services, authentication, and role-based permissions.
- Migrated and normalized SQL Server database, establishing table relationships, adding new entities, and updating schemas to enable rebuilt and new functionality.
- Worked in a two-developer, five-person Agile/Scrum project team using Git, GitHub, and code reviews; deployed the application to a Microsoft server environment.

University of Nebraska-Lincoln

AgTech IoT Engineer | Scottsbluff, NE 11/2019 to 08/2020

- Built and field-tested five Raspberry Pi/16 MP ArduCAM nodes, capturing and transmitting images over LoRa every 15 minutes from commercial farms and research plots, enhancing data collection.
- Developed initial Angular farm-management and sensor-monitoring web application, establishing foundation for ACREE platform.
- Deployed and maintained application environment on Debian Linux 9 server, ensuring reliable web services and field-data operations.

Accomplishments

- Farm Foundation Cultivator (2023)
- Global Laureate Scholarship (2020-2023)
- Pinnacle Award (2019)
- Division of Business and Information Technology Award (2018-2019)

Selected Presentations

- ACREE: A Mobile App Designed for Applied Collaborative Research, Extension, & Education., CANVAS 2025 poster presentation, Salt Lake City, UT
- A Pivot-Mounted IoT Sensing Node for Live Agricultural Data Collection., ASABE Annual Meeting 2023 oral presentation, Omaha, NE
- An AI-Based Flow Meter Readings Recognition Framework in an Agricultural IoT Setting., ASA/CSSA/SSSA Annual Meeting 2021 oral presentation, Salt Lake City, UT

Selected Publications

- Yang, Z., Liang, W.-Z., Lawrence, N., et al., Oboamah, J., WeedCAM: An Edge-Computing Camera System for Multi-Species Weed Detection in Sugar Beet Production Fields., Computers and Electronics in Agriculture, 244, 111498, 2026
- Lee, Y., Chen, R. Q., Oboamah, J., et al., SPADE: A Large Language Model Framework for Soil Moisture Pattern Recognition and Anomaly Detection in Precision Agriculture., arXiv, 2509.18123, 2025
- Chiang, C.-E., Liang, W.-Z., Chen, J., et al., Oboamah, J., BudCAM: An Edge Computing Camera System for Bud Detection in Muscadine Grapevines., Agriculture, 15, 21, 2220, 2025
- Liang, W.-Z., Oboamah, J., Qiao, X., et al., CanopyCAM: An Edge-Computing Sensing Unit for Continuous Measurement of Canopy Cover Percentage of Dry Edible Beans., Computers and Electronics in Agriculture, 204, 107498, 2023