Luke Auderer

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Education

Iowa State University
Ames, IA

Master of Science in Computer Science (concurrent B.S./M.S. program) — *Aug. 2025 - May 2027 (expected)*

Bachelor of Science in Computer Engineering — *Aug. 2023 - May 2026 (expected)*

- GPA: 4.0/4.0, President's List, Engineering Dean's List, Iowa State Investment Club - Technology Sector

Des Moines Area Community College
Ankeny, IA

Associate of Science and Associate of Arts (earned in high school) — *Aug. 2019 - May 2023*

- GPA: 4.0/4.0, ACT Score: 35/36, Iowa Governor's Scholar Award, Iowa Seal of Biliteracy (spanish proficiency)

Experience

SpaceX
Austin, Tx

Software Engineering Intern - Starlink Product Engineering — *June 2025 - Aug. 2025*

- Developed firmware for Starlink user terminals to collect and aggregate power telemetry across the global fleet, visualizing the results in a Grafana dashboard for real-time monitoring
- Integrated the telemetry data into Starlink's test infrastructure, enabling engineers to track performance trends and perform root-cause analysis of connectivity issues during testing
- Identified and resolved a major failure source through the collected telemetry insights, reducing operational costs by $35,000 per week
- Developed a diagnostic tool to log and analyze network performance metrics on Starlink satellites, storing logs in AWS S3 to enable early detection of degraded link conditions during orbital handoffs to ground stations and neighboring satellites

John Deere
Urbandale, Ankeny, Ames IA

Machine Learning and Robotics Engineer (Full-Year Intern) — *Aug. 2024 – May 2025, Sept. 2025 - Present*

- Developed crop vs. weed detection models in PyTorch using high-resolution images from 36 cameras mounted on a John Deere sprayer
- Deployed models on-machine using NVIDIA Orin GPUs for real-time weed detection, enabling the sprayer to target only weeds instead of spraying entire crop rows, resulting in a 60% reduction in herbicide usage when the system is enabled
- Collected and labeled thousands of images in varied field conditions to improve model accuracy across crop types and geographies
- Collaborated with agronomists and embedded engineers to validate system performance in field trials, ensuring consistent detection accuracy at 15 mph

Design Engineering Intern — *May 2024 - July 2024*

- Designed and documented electrical systems in Creo for John Deere's embedded computer vision platforms, contributing to harness routing, schematic updates, and integration of new components
- Developed custom Python scripts to automate repetitive validation checks and streamline documentation in the development process, cutting design validation time from hours to minutes per iteration

Embedded Software Engineer (Full-Year Intern) — *May 2023 - April 2024*

- Developed embedded software for John Deere sprayers to enable real-time communication between vehicle subsystems over the CAN bus
- Designed and implemented new user interface layouts in a Qt-based GUI for the in-cab display used in John Deere products

Iowa State University Advanced Manufacturing Lab
Ames, IA

Research Assistant - Project Lead — *Sept. 2023 - Present*

- Researching under Dr. Frank Peters and leading a project to develop a low cost structured-light 3D scanner
- Built a prototype scanner with a scan accuracy within 4% of high-end models costing over $20,000, using only $2,000 of components
- Designed the prototype from the ground up, integrating electronics, 3D-printed components, basler cameras, and a LightCrafter 4500 digital light projector to achieve synchronized image capture and high-quality 3D scans
- Optimized image processing workflows to enhance the speed/precision of 3D scans using OpenCV and open-source scanning software

Activities

FIRST Robotics
Polk City, IA

Programming team, Mechanical Design team, Current Coach — *June 2021 - Present*

- Built a swerve drivetrain for the team robot to improve handling, then integrated an onboard camera system for autonomous navigation
- Returned to my high school team as a volunteer coach to teach engineering concepts to high school students

Technical Skills

Languages: Python, Java, C++, C, Swift, Kotlin, JavaScript (React.js, Node.js), HTML/CSS, MATLAB
Tools: Git, Linux, OpenCV, CUDA, PyTorch, TensorFlow, AWS, SQL, Qt, CMake, Gradle, Bazel, Android SDK, Ansible, Docker, Grafana
Competencies: Data Structures, Algorithms, OOP, Embedded Systems (UART, ADC, CAN), REST APIs, Multithreading, Networking (TCP/IP)