John Brittain

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View my website

EDUCATION

IOWA STATE UNIVERSITY, College of Engineering *2023 - 2026*

Bachelors of Computer Engineering (3.38 GPA)

Major Computer Engineering
Minor Music Technology
Focus on Embedded Systems

Deans List. (Fall 2024 → Fall 2025)

DES MOINES AREA COMMUNITY COLLEGE (DMACC) *2021 - 2023*

Pre-Engineering Transfer Program

EXPERIENCE

Software Developer / ALAB Assistant – Ames National Laboratory *March 10, 2025 → Current*

- **Software Development:** Collaborated with a team to develop Rxn Rover, an open-source lab automation software platform.
- **Technical Documentation:** Used Sphinx to improve Rxn Rover website, including API documentation, tutorials, and a plugin catalog
- **Repository Management:** Managed 45+ GitHub repositories as a member of the Rxn Rover organization.
- **User Support & Outreach:** Implemented User feedback to improve usability and add additional features. Provided technical support to scientists in lab environments, resolving hardware and software issues.
- **Hardware Integration:** Developed device drivers to integrate lab equipment into Rxn Rover.
- **Inter-Lab Collaboration:** Contributed to multiple chemical experiments in collaboration with Ames and Oak Ridge national Laboratories.

Developed an Autonomous Debris Cleanup Robot using Roomba Platform.

- **Communication Systems**: Integrated ESP32 Wi-Fi module and UART for real-time data exchange and operator control.
- **Autonomous Navigation**: Designed movement algorithms for navigating hazardous terrains and avoiding obstacles using bump and cliff sensors with automatic rerouting.
- **Object Detection**: Utilized PING sensors (timer interrupts), IR sensors (ADC), and PWM-controlled servo for precise scanning and debris identification.
- **Goal Completion**: Worked and communicated with a small team to efficiently complete the project.
- **User Interface Development**: Built a Python-based GUI to send user commands, receive sensor/movement data, and display a live environmental map.
- **Advanced Features**: Designed and integrated a 3D-printed robotic arm on the pre-existing system for remote debris manipulation.

Notable Classes:
COMS 3090 (Full-Stack Software Development), CPRE 3880 (Embedded Systems II), COMS 4720(Principles of AI), COMS 4740(Introduction to Machine Learning)

SKILLS

Hard Skills

- Embedded Systems
- Git and other collaborative tools.
- System Design & Integration
- Linux Operating Systems
- Troubleshooting
- Prototyping
- 3D modeling
- Computer Aided Design
- GUI Development
- Software Structuring
- Sound Design
- Digital Composition
- Circuit Analysis
- Reading and Writing Technical Documentation
- **Programming Languages** (Python, Java, C, VHDL, Verilog, HTML, CSS, JavaScript, LabVIEW)
- **Software & Tools** (Android Studio, Adobe Photoshop, Blender, ProTools, Ableton Live, Quartus Prime, Fusion 360, Cinema 4D, LTSpice, LabVIEW)

Soft Skills

- Strong Work-Ethic
- Driven
- Creative
- Inspired and willing to learn
- Adaptable
- Agreeable
- Independent
- Detail-Focused
- Holistic
- Tinkerer

INTERESTS

- **Technology**: Staying up to date with innovations in automation, AI, hardware, and gadgetry.
- **Robotics**: Designing consumer-focused, high-quality robotics to bring the future to the now.
- **Movies & TV**: Enthusiastic about long-form cinema (*Lord of the Rings*), British television, and the works of the Coen Brothers.
- **Musical Instruments and Design**: Exploring sound design, instrument variety, and the art of human expression through music.
- **Vintage Electronics**: Restoring and exploring CRTs, analog recording equipment, and retro computing technologies.
- **Camping and Outdoors**: Enjoying bush crafting, hiking, survival skills, and the serenity of campfires.
- **Video Games**: Playing role-playing games and base-building.
- **3D Printing**: Creating functional prototypes and custom designs too solve problems, and for fun.
- **Media Creation**: Producing musical, video, and visual content.
- **Woodworking**: Crafting functional and artistic pieces like tables, lamps, and workstations.

ABOUT ME

I'm a tinkerer at heart, passionate about exploring and creating across a wide variety of fields. An avid DIY enthusiast, I thrive on the process of design and innovation. I see broken things as opportunities to improve and refine, driven by a belief that engineering can be used to improve our lives with devices that embody both simplicity and elegance.

I'm currently working on:

- 3D printed quad-copter
- Synthesizer
- Robot Otomatone Player
- Home Lab Setup: self-hosted server including file sharing, network services, and LLM

Thank you for showing interest in myself and reading my resume.