

# Joshua Abraham

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## RELEVANT EMPLOYMENT

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### Software Engineer Intern

Lisle, IL

*Navistar Inc.*

*May 2024 – Aug 2024*

- Collaborated with a global team of 20+ engineers to redesign a Pulse Width Modulation (PWM) output handler within the AUTOSAR framework, **achieving a 260% increase in execution speed** in the CIO IOHWAB Mux Handling SW Module using C code, enhancing ECU software performance across all Navistar vehicles.
- Developed and automated testing scripts for 128 fault cases in PWM and I/O handling software using TestIdea, **reducing manual testing time from 2 days to approximately 10 minutes**, significantly improving validation efficiency and reliability. Faults include: Short to battery, short to ground, open load, overload.
- Leveraged technologies including AUTOSAR architecture, Real-Time Environment (RTOS), DA1 Network Architecture, CANalyzer, and J1939 protocol, while gaining experience in multiplexing, PWM applications, ADC logic, and using SVN for version control and Jira for task management.

### Student Technician

College Station, TX

*TAMU Technology Services*

*Oct. 2022 – Present*

- Co-create professional development and onboarding curriculum for incoming IT student technicians to be successful in the Help Desk role within TAMU Technology Services.
- Managed development of TAMU's intranet portal (SharePoint) to drive demand for the new training and development program for 800+ prospective IT student workers and existing staff across TAMU's IT organization.
- Co-produce and report program updates for the TAMU Academic Operations Leadership board.

## EXPERIENCE

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### Telemetry Sub-team Engineer & Motor Sub-team Engineer

College Station, TX

*Texas A&M Solar Car Racing Team*

*Sep. 2022 – Present*

- Utilized STM32 microcontrollers and the vehicle's CAN bus to develop efficient data collection solutions and enhance overall system performance.
- Designed high-voltage electric schematics/layouts for the power distribution board and telemetry nodes using Altium Designer to optimize data collection.
- Integrated wireless communication protocols, leveraging Python for data analysis; optimized system performance.

## PROJECTS

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### Personal Website

*Feb. 2024*

- Created a personal website using HTML, CSS, and JavaScript to showcase career intentions, technical portfolio, qualifications, and AI-generated content.

### Library Management System

*Jul. 2023*

- Developed a library management system in C++ to find and manage school library books available in inventory, optimized for performance and fast information retrieval.

### Sudoku Solver

*Feb. 2023*

- Developed a custom C++ program to automate solving of sudoku puzzles with SMT-LIB code, generating several hundred lines of propositional statements to solve sudoku puzzles in under a minute.
- Tested, validated, and refined the code using online automation tools (Z3 playground).

## EDUCATION

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### Texas A&M University

College Station, TX

*Bachelor of Science in Computer Engineering*

*Aug. 2021 – May 2025*

## SKILLS & COURSEWORK

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**Languages:** C/C++, Python, JavaScript, SQL, Verilog RTL, ARMv8, Java, R, HTML/CSS, LaTeX

**Developer Tools:** Git, Google Cloud Platform, Visual Studio Code, Microsoft BI, Excel, SharePoint, Linux CLI

**Hardware Tools:** FPGAs, Altium Designer, Breadboard Electronics, Raspberry Pi, Arduino, SolidWorks