Garrett King

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EDUCATION

Western Washington University Bellingham, WA

Bachelor's in Computer Science *Aug. 2018 – Dec. 2023*

EXPERIENCE

Software and Embedded Engineer II Jan. 2024 – Present

PACCAR Electronics - Digital Display - C/C++ *Mount Vernon, WA*

- Designed and implemented software for the Digital Display to interface with various electronic control units (transmission, engine, right hand stalk shifter) using C/C++ and J1939 communication protocol.
- Collaborated with transmission suppliers to develop failsafe software strategy for loss of shifter communication, preventing sudden vehicle immobilization and addressing an issue that led to 116,000 recalled trucks.
- Developed software updates to enable real-time state of charge reporting on the Digital Display while Battery Electric trucks were keyed off, addressing a prior limitation where only the last known charge level was shown.
- Refactored 5,000 lines of fuel economy code to support Hydrogen Fuel Cell truck platforms, implementing new algorithms to calculate fuel economy metrics for hydrogen gas consumption based on third-party engine signals.
- Led cross-functional defect analysis and established developer-driven debugging processes, resulting in a 20% reduction in software issues through improved testing protocols and on-vehicle validation.

TECHNICAL SKILLS

Languages: C/C++, Dart, Java, JavaScript, SQL
Mobile & UI: Flutter, React Native, Android Studio, Firebase
Embedded Systems: CANalyzer, Real-time Systems, Vehicle Networks
Development Tools: Git, Visual Studio, Azure DevOps
Enterprise Tools: IBM DOORS Next, ALM-QC, Windchill

PROJECTS

Scrambled Egg Mobile App | *Dart, Flutter, Firebase* | view project Dec. 2023 – Present

- Engineered a Flutter/Dart mobile application leveraging Firebase backend and Edamam API integration to deliver personalized recipe recommendations through an intuitive swipe-based interface, implementing real-time data fetching and preference-based filtering algorithms.
- Developed robust JSON parsing and validation to filter API responses based on data completeness, implementing error handling logic for recipe, nutrition, and image fields to ensure high-quality content delivery to users.
- Architected user authentication and profile management system using Firebase, enabling persistent storage of favorite recipes and social sharing functionality.

Microshell | *C, UNIX* | view project Mar 2023

- Extended an existing microshell implementation in C by adding command-line argument parsing with quoted string support and dynamic memory allocation.
- Implemented environment variable expansion feature (${VAR} syntax) and built-in command framework using fork()/exec() system calls
- Enhanced shell functionality through system programming concepts including process control, memory management, and Makefile build configuration

Smart Buoy Mobile App | *Dart, Flutter, Firebase* | view project Jan. 2023 – Jan. 2024

- Designed an intuitive mobile interface for displaying buoy sensor data, allowing real-time data validation.
- Used Flutter to implement bluetooth connectivity, allowing users to connect to smart buoys via mobile device.
- Built bi-directional data sync between mobile app and web-server, expanding visibility of buoy metrics including location history and authorized users.

TCP Client-Server Message Recorder | *C* | view project Feb 2023

- Wrote software in C using TCP/IP and the Sockets API to send messages between client and server.
- Extended server functionality to record messages from client to an ASCII text file with Date-Time stamps and the client's IP address.