ASHER VALENTINI

[ashermvalentini@gmail.com] • [+436608271605] • [Italian Passport]

MISSION STATEMENT

A resourceful engineer who looks to take the initiative. Adept at developing original solutions but always happy to consider outside perspectives and build toward external ideas. 7YOE in C++ development. 3.5YOE in industry.

EXPERIENCE

Cellectric BioSciences | Embedded Software Engineer | 01/03/2023-Present

- **Circuit Design:**
  Designed and manufactured ESP32 architecture-based circuits targeting the control of hardware such as stepper/solenoid drivers and I2C/SPI sensors.
- **Firmware, RTOS & RPC Implementation:**
  Created C++ firmware with Real-Time Operating Systems and RPC frameworks.
- **GUI & Control Software:**
  Built a cross-platform GUI (Qt) and Python3 application following OOP, MVC, and event-driven design patterns to ensure thread safety and modularity.
- **DevOps & CI/CD:**
  Established CI/CD pipelines, Docker containers, and packaging processes to streamline development and deployment.
- **Microfluidics:**
  Designed a microfluidic subsystem integrating peristaltic and syringe pumps, solenoid valves, and sensor feedback (temperature, pressure, flow rate).

Toro Tech | C++ Developer | 01/03/2022-01/02/2023

- **Real-Time Market Data Handling:**
  Wrote programs to receive and process high volumes of market data feeds in real time and optimized data ingestion pipelines to ensure that the data is processed with minimal latency.
- **Order Execution Engines:**
  Developed systems that execute orders quickly and reliably, including order routing, matching, and interfacing with various exchange protocols.
- **High Availability and Fault Tolerance:**
  Ensured that trading systems are resilient and can recover quickly from failures by building systems with redundancy and real-time error detection.
- **Collaboration and Integration:**
  Translated the quant team's models and strategies into production-ready code. Interacted with operations, network engineers, and compliance teams to ensure that all components of the trading ecosystem functioned smoothly.

BlackGold.Earth | Project Engineer (Student Intern)| 01/11/2021-01/02/2022

- **Sustainable Systems:** Designed a modular micro-farm container facility.
- **Geospatial Software:** Collaborated on a proprietary satellite imagery solution for produce tracking.

EDUCATION

University of Stellenbosch, RSA | 2018 – 2022
BEng Mechatronic (with Honors, upper second class)

ACHIEVEMENTS

- **Medical Device Completion**:
  I am proud to say that the device developed at Cellectric from the ground up is undergoing hospital-based trials as well as research use with several universities, laboratories, and international Bio-Tech corporations.
- **Award-Winning Thesis:**
  My thesis (80%) was nominated for the Stellenbosch University Innovation Award and placed as the second runner-up among seven finalists selected from over 700 candidates.

PROJECTS

Pressure driven flow controller

- Designed the circuit board to drive four piezoelectric micropumps. The circuit consisted of several H-Bridges, voltage boosters, current sensing op amps, I2C interfaces, and an embedded ESP32.
- Developed and programmed RTOS-based firmware for ESP32 microcontroller, incorporating PID control algorithms to optimize system operations and ensure precise device control in real-time environments.
- Notably, the system is equipped with current sensing capabilities to allow frequency tracking, improving system performance and lifecycle.

TECHNICAL SKILLS

- **Languages**: Python, C++, Dart, HTML, CSS, QSS
- **Libraries and Frameworks**: Qt, Pyside 6, PYQT5, Matplotlib, Pandas, Numpy, C++ STL 11/14/20, FreeRTOS
- **Tools and Platforms**: Jira, Confluence, GitHub, Git, EasyEDA, Altium, LTSpice, Yocto Project, Buildroot, Docker, CMake, Figma, Qt Creator, STM32CubeIDE, PlatformIO, Vim, NeoVim, VSCode
- **Architecture**: ARM and ESP32