Peter Younan

Sterling Heights, MI 48312
586-701-1266, peteryounan2004@gmail.com
LinkedIn: https://www.linkedin.com/in/peter-younan-/

Education

Oakland University **Rochester, MI**
BS in Electrical and Computer Engineering *GPA: 3.4*
Electrical and Computer Engineering Major

Relevant Coursework

[ECE 4710/2700] – [Digital Logic Design / Computer Hardware]:

- Designed and synthesized digital systems in VHDL using Xilinx Vivado, including finite state machines, registers, multiplexers, and arithmetic logic units targeted to the Nexys A7 FPGA
- Verified hardware designs through testbench simulation, waveform analysis, and on-board validation, applying signed and unsigned number representation and timing closure techniques

[ECE 4721] – [Embedded Systems / Microcontrollers]:

- Developed bare-metal firmware in C and C++ for microcontroller platforms (Arduino, Dragon12-Lite, TI TM4C123), interfacing with peripherals via GPIO, PWM, UART, SPI, and CAN protocols
- Built end-to-end embedded systems integrating sensors, motor drivers, and wireless modules (HC-05 Bluetooth), with real-time command parsing and on-hardware validation

[ECE 3105/3100] – [Electric circuits and Devices I/II]:

- Analyzed DC and AC circuits using Kirchhoff's laws, mesh and nodal analysis, Thevenin and Norton equivalents, and phasor methods for steady-state response
- Designed and characterized circuits with operational amplifiers, RLC networks, and semiconductor devices, validating theoretical results through SPICE simulation and laboratory measurements

[ECE 3720] – [Microprocessors]:

- Programmed microprocessor systems in assembly and C, working with instruction sets, addressing modes, memory mapping, and interrupt handling on real hardware
- Implemented low-level peripheral drivers and timing-critical routines, gaining experience with the boot process, register-level configuration, and embedded debugging

Technical Skills

- Proficient in programming languages C++, C#, Python, MATLAB, VHDL, JavaScript, Arduino
- Proficient in FPGA design and digital logic implementation using Vivado and VHDL
- Proficient in embedded systems development and microcontroller programming
- Experienced with CAD software, including Catia V5
- Experienced with simulation tools, including SPICE, Tecnomatix Plant Simulation, Keil uVision5, and Code Warrior
- Proficient in Microsoft Office (Word, Excel, and PowerPoint)
- Communication protocols (I2C, SPI, CAN, UART)

Related Projects

Signed Calculator (FPGA / VHDL) **1/2024-4/2024**

- Designed and implemented portions of an 8-bit signed calculator on a Nexys A7-100T FPGA, collaborating within a team-based hardware design environment
- Developed VHDL modules in Vivado implementing finite state machines (FSMs), registers, multiplexers, and an arithmetic logic unit (ALU) to support addition, subtraction, multiplication, and division
- Integrated signed and unsigned number handling, enabling LED-based output visualization and user input through on-board push buttons

- Validated functionality through waveform simulation and on-board hardware testing, ensuring correct arithmetic operations and control logic

Automated Blinds **1/2025-4/2025**

- Designed an automated blind system by calculating required motor torque and selecting appropriate motors to meet mechanical load requirements
- Created a full CAD assembly for motors and 3D-printed components, validating fit, alignment, and mechanical integration prior to fabrication
- Implemented sensor-based control using a light sensor to automatically open or close blinds based on lux level readings
- Developed a manual override mode using a remote control, enabling user-controlled operation independent of sensor input

Bluetooth-Controlled 4WD RC Car **1/2026-3/2026**

- Built a 4WD Bluetooth-controlled robotic car using an Arduino microcontroller, HC-05 Bluetooth module, and dual L293D H-bridge ICs to drive four DC gear motors with PWM speed control
- Architected the full hardware stack from HC-05 UART serial link through the Arduino to dual motor drivers, wiring 12 motor-driver pin connections across the 4WD chassis
- Wrote embedded C++ firmware implementing real-time Bluetooth command parsing, differential steering logic, and safe motor startup states
- Conducted power and cost analysis for a future HC-SR04 ultrasonic obstacle-detection feature, calculating a power draw increase at added hardware cost

Work Experience

Walmart **Warren, Michigan**
Backroom Crew *June 2024 – Current*

- Trained new employees on order fulfillment processes and inventory stocking workflows to improve team efficiency
- Collaborated with cross-functional team members to meet daily operational targets under time constraints
- Prioritized tasks in a fast-paced environment while supporting customer fulfillment and inventory accuracy

Communication Consultant INC. **Fraser, Michigan**
Warehouse Floater *Jan 2022-May 2024*

- Organized inventory of over a thousand phones by efficiently sorting them in warehouse and keeping track of inventory
- Diagnosed phones and unlocked them per customer requests
- Used Excel to help find unlock codes in a database and sort phones by models as efficiently as possible

Skills

- C++
- MATLAB
- Arduino
- 3D-Printing
- I2C
- SPI
- C#
- VHDL
- Vivado
- SPICE
- Visual Studio
- CAN
- Python
- JavaScript
- Catia V5 (CAD)
- Tecnomatix
- I/O Interfacing
- Troubleshooting

Certifications

- OSHA 10 Construction Industry
- OSHA 10 General Industry