**Gerard Butler**

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**SUMMARY**

Senior B.S. Computer Engineering student at MSOE with extensive hands-on, team-based engineering project experience. Skills in C, C++, Java, VHDL, Verilog, Python, MATLAB, Virtual Machines, and Linux.

**EDUCATION**

**B.S. Computer Engineering** | Milwaukee School of Engineering | GPA: 3.2 | Expected November 20XX

**PROJECT EXPERIENCE**

**Senior Design Project (Team of 5) | Industry Sponsor: TAPCO (In Progress)**

**School Bus Warning System Project:** Design and create a bus warning system that sends alert to oncoming drivers when school bus is stopped and allowing children on/off.

* Programmed TAPCO’s off-the-shelf Danlaw On-Board Units and Roadside Units to communicate with each other through C-V2X.
* Wrote python scripts to send and receive packets of data that contained information about vehicle position, speed, heading, etc.
* Wrote python code using PyBluez to establish Bluetooth connection with on-board units to Android app

**Incremental Design of a Custom Embedded System Project**

**Objective:** Design software using VHDL and C programming to interface with multiple peripherals on Terasic FPGA and deploy implementation on SoC computer.

* Developed custom peripherals in HDL using system-on-chip and memory-map concepts.
* Generated custom PWM signal generator, added to SoC base computer, and deployed to hardware.
* Generated API for control of complex peripherals (LCD, accelerometer, servo motors, etc.) via I2C and/or SPI serial protocols.

**GUI Drawing Application Project**

**Objective:** Develop program in Linux using C++ to display numerous 2D and 3D images with drawing, save, load, fill, rotation, and size increase functionality.

* Created matrix class to hold shapes in xyz plane, as well as provide various matrix operations and

error detection: assignments operation addition, multiplication, transposing, and editing matrix values.

* Developed program to allow user input to draw lines and circles using class hierarchy and polymorphism features of C++.
* Added click detection and event driven drawing to allow preview, drawing, and hover functionality with mouse and keystrokes.
* Developed program to add ability to modify image with scales, translations, and rotations, as well as 3D rotation across x and y axis.

**TECHNICAL SKILLS**

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| * Java * C * C++ | * Terasic FPGA Boards * VHDL * Verilog | * ARM Assembly * Python * STM Microcontrollers |
| * MATLAB | * Linux | * Virtual Machines |

**WORK HISTORY**

**Customer Service Representative**  | Kroger | Milwaukee, WI | November 20XX – December 20XX