

Lee Lazarecky

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Education

Wayne State University, Detroit

B.S., Computer Science

Graduation: **May 10th, 2017**

GPA: **3.42 / 4.00**

Work Experience

United State Air Force, Aircraft Armament Systems Journeyman, Aug. 2009 - Feb. 2016

- Troubleshot A-10 aircraft computer systems and diagnosed potentially damaging issues affecting the weapon systems, using wiring schematics and technical manuals.
- Repaired and reinstalled faulty computer systems such as wiring, connectors, and plugs, that were used on the A-10 weapon systems.

Wayne State Department of Computer Engineering, Intern, Sep. 2014 - Dec. 2014

- Developed a Java algorithm for splicing big data text files, 10 gigabytes or greater, into equally sized files and distributed these files across multiple VMs, in order to optimize the performance.
- Wrote an algorithm for calculating word frequency in order to display the results graphically using Charts.js.

Valeo, Research and Hardware Development Co-Op, July 2016 - Present

- Worked independently on developing internal software for automating the generation of camera calibration files.
- Created **GUI** software written with **Qt** and **C++** that was used as a frontend application for the generation of calibration files.
- Worked independently on **designing automated testing** programs, using the Microsoft Windows C API and **C++**.
- Flashed calibration files over **UART** and **CAN** protocols, using the Vector Canoe software tool, to an embedded VPM which was used to test the vehicle cameras for various calibration errors, such as improperly rendered guidelines, camera bleeding, and image discoloration.

Open Source Projects

Multi-System Video Game Emulator, Phoenix, Dec. 2013 - Present

- Led a team of developers in implementing a multi-threaded and multi-process video game emulator.
- Utilizes a GUI which was implemented using **QML** and **C++** and a **SQLite** database for library management.
- Designed an audio and video pipeline for rendering audio and video streams for consistent 60 fps.
- This program is split up into multiple processes, using local sockets and shared memory for **IPC** communication.
- Video data is passed between processes in region of shared memory and constructed into an OpenGL texture for rendering.

Chip8 Interpreter

- Interprets and executes instruction sets from binary files compiled specifically for the Chip8 virtual machine, by re-implementing the Chip8 interpreter in **C++**.
- Handles all of the Chip8 op-codes and displays the emulated video game using the **Qt QML** scene graph and OpenGL 2D textures.

QML Accessible SQL Model

- Created a generic **SQL** model that can be used exclusively from **QML** code, without having to dive into **C++**.
- Was created using **C++** and the **Qt** libraries and supports all of the **SQL** engines and features that the **Qt QSql** library supports.
- Is implemented using multiple threads so that queries on this model do not stall the UI thread.

Pong Clone

- Designed and implemented a clone of the popular arcade game *Pong* in **C++** and **QML**.
- Utilizes a rudimentary artificial intelligence for single player usage, using y-axis tracking.

Flat UI QML Controls

- Created various QML widgets, patterned to look and conform to the Flat UI Bootstrap Controls, as defined at <http://designmodo.github.io/Flat-UI/>.

Skills

Languages

- **C++**, **QML**, **Python**, Lua, Java

Technologies

- **CAN**, **UART**, **Git**, SVN, Serena, HTML, CSS, IPC, RPC

Operating Systems

- Linux, Windows, Mac OSX