Matthew J. Barichello

Systems Integrator
Software Developer
Electrical Designer

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Experience

Dec 2019 - present
Sensibill Inc. (Engineer), *Toronto, Ontario*
- Backend API engineer

May 2019 - present
Optimotive Technologies (Contractor), *Windsor, Ontario*
- Contractor for electrical design and software development

December 2018 - present
No Generics Ltd. (CEO), *Belle River, Ontario*
- Scalable cloud virtualization with a 10Gbe intranet back-plane for high-throughput storage access
- Game server hosting with segregated virtualization containers and isolated networking
- Software development and electrical design contractor

February 2018 - June 2019
Programming and Computer Science Tutoring, *Assumption College High School*
- Private online Java programming tutoring during weekdays after school
- In-class Java programming and computer science conceptual tutoring

September 2015 - June 2017
Programming and Electrical Design Mentor, *Assumption Robotics Club*
- Taught and mentored Java and C programming as well as circuit design and implementation in robotics

2013 - March 2019
Multi-tiered Networking and Server Deployment, *Blind Beast Servers, Home Lab*
- Deployed fault tolerant continuous integration service, git repository and DNS caching service, across multiple hosts in the cloud
- Deployed a lights-out, fully-encrypted PXE boot based KVM cluster over 10Gbe, with redundant 1Gbe seamless fallback routes and isolated management NICs, utilizing mixed consumer-grade and industrial computing solutions

Languages & Frameworks

Languages	`Java; Kotlin; Groovy; C; C++; Go; Bash; m4; LaTeX; Python; Lua; Pascal`
Operating Systems	`Windows; macOS; Linux (Debian & derivatives; Red Hat & derivatives; Arch)`
Frameworks	`OpenCL; OpenGL; Apache Commons; Processing; JNI; Coreutils; KVM; QEMU; LUKS; Systemd; Init; Cron; iproute2; iptables; docker`
Build Tools	`Gradle; Maven; Ant; CMake; GNU/Make; Autotools; Waf`

Competitions

March 22-23, 2019	**Massey Hacks V**
December 7, 2018	**15th Windsor Regional Secondary School Programming Competition**
September 14-16, 2018	**Hack the North 2018**
April 28-29, 2018	**Massey Hacks IV**
April 1-2, 2017	**Massey Hacks III**
May 21-22, 2016	**Massey Hacks II**

Projects

September 2019 - present
baron - C, C++, CMake, JNI, JVMTI
- A reverse engineering framework built on top of fake-jni designed to streamline the disassembly process by interacting with black-box JNI modules and JVMTI agents.

August 2019 - present
cx-mat - C++, CMake, OpenCL, OpenGL
- A portable constexpr-compatible linear algebra library built with both vertical and horizontal scalability in mind. cx-mat exposes a high-level template interface allowing for stream-like operation composition, which decomposes to any number of backends, supported by both OpenGL and OpenCL.

April 2019 - August 2019
jda - Kotlin, Groovy, Gradle
- A simple adapter library that exposes an interface for JetBrains' proprietary implementation of the Fernflower Java decompiler.

February 2019 - present
CX - C++, CMake
- A collection of platform-agnostic constant expression tools, template meta-functions and detection idioms. Provides support for compile-time string manipulation, compile-time reflection, compile-time variadic tuple construction and manipulation, and much more.

January 2019 - present
fake-jni - C++, CMake, JNI, JVMTI
- A portable C++ library for seamlessly implementing Java classes completely in native code. Designed specifically for removing the overhead of a running JVM instance from a JNI native library, with minimal API boilerplate and dynamic linking support

July 2018 - present
Pal - Java, C++, Groovy, Gradle, CMake
- A Java compiler extension that enables meta-programming and bytecode instrumentation through annotations, while retaining full compatibility with preexisting and future JVM and JDK specifications.

Education

August 2019
Quantum Cryptography School for Young Students *University of Waterloo*

September 2015 - July 2019
Ontario Secondary School Diploma *Assumption College High School*
International Baccalaureate Certificate *Assumption College High School*

July 2015
DMA Certificate for Advanced Java Programming *University of Toronto*

Awards

2018
First Place Programming Team Award, *University of Windsor*

2018
First Place Hacker, *Massey Hacks IV*

2018
Best Hardware Hack, *Massey Hacks IV*

2016 - 2019
Honour Roll, *Assumption College High School*

2015
Optimist Award, *St. William Elementary School*

2015
Science Proficiency Award, *St. William Elementary School*

2015
Academic Excellence Award, *St. William Elementary School*