

Matthew J. Barichello

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SYSTEMS INTEGRATOR
SOFTWARE DEVELOPER
ELECTRICAL DESIGNER

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Experience

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|----------------|--------------|---|
| May 2019 | - present | Optimotive Technologies (Contractor) , <i>Windsor, Ontario</i> <ul style="list-style-type: none">• Contractor for electrical design and software development. |
| December 2018 | - present | No Generics Ltd. (CEO) , <i>Belle River, Ontario</i> <ul style="list-style-type: none">• 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 , <i>Assumption College High School</i> <ul style="list-style-type: none">• 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 , <i>Assumption Robotics Club</i> <ul style="list-style-type: none">• 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 , <i>Blind Beast Servers, Home Lab</i> <ul style="list-style-type: none">• 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 |

Projects

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| September 2019 | - present | baron - C, C++, CMake, JNI, JVMTI <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• A simple adapter library that exposes an interface for JetBrains' proprietary implementation of the Fernflower Java decompiler. |
| February 2019 | - present | CX - C++, CMake <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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. |

Languages & Frameworks

Languages	Java; Kotlin; Groovy; C; C++; Bash; m4; TeX ; 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

Education

August 2019	Quantum Cryptography School for Young Students <i>University of Waterloo</i>
September 2015 - July 2019	Ontario Secondary School Diploma <i>Assumption College High School</i>
	International Baccalaureate Certificate <i>Assumption College High School</i>
July 2015	DMA Certificate for Advanced Java Programming <i>University of Toronto</i>

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

Awards

2018	First Place Programming Team Award , <i>University of Windsor</i>
2018	First Place Hacker , <i>Massey Hacks IV</i>
2018	Best Hardware Hack , <i>Massey Hacks IV</i>
2016 - 2019	Honour Roll , <i>Assumption College High School</i>
2015	Optimist Award , <i>St. William Elementary School</i>
2015	Science Proficiency Award , <i>St. William Elementary School</i>
2015	Academic Excellence Award , <i>St. William Elementary School</i>