Matthew J. Barichello

Systems Integrator
Software Engineer
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Experience

March 2020 - February 2021

Sensibill Inc. (Security Champion), *Toronto, Ontario*

- Introduced proactive security standards for engineering teams
- Deployed new CI-coupled security infrastructure for source and dependency vulnerability detection and quality gating
- Deployed new active infrastructure monitoring utilities for behavioural anomaly detection, resource load monitoring and real-time attack detection

Sensibill Inc. (Data & AI Researcher), *Toronto, Ontario*

- Built out bleeding edge heuristic data extraction models in Typescript and Python that powered the development and release of multiple new Extraction-as-a-Service (EXaaS) products
- Created real-time data segmentation prototypes based on graph clustering to select the appropriate model(s) for optimal data extraction
- Created and maintained data annotation tooling
- Handled production model deployments

December 2019 - March 2020

Sensibill Inc. (Backend Engineer), *Toronto, Ontario*

- Developed a set of scalable RESTful microservices in Golang and Java, backed by a scalable asynchronous message query platform
- Created and provisioned cloud architecture using IaC on AWS
- Managed a private CI and CD platform using IaC on AWS

May 2019 - March 2020

Optimotive Technologies (Contractor), *Windsor, Ontario*

- Contractor for electrical design and software development

March 2019 - March 2020

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 2015

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

Cloud Platforms	`AWS; DigitalOcean; OVH; Azure`
Cloud Frameworks	`PrismaCloud; SonarQube; Instana`
CI/CD & Automation	`Kubernetes; GitLab; GitHub Actions; CircleCI; Jenkins; sr.ht`
IaC	`HCL Terraform; Chef; AWS CDK`
Languages	`C++; C; Go; Java; Kotlin; Groovy; TypeScript; JavaScript; Bash; m4; LaTeX; Rust; 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** *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*

Projects

January 2020 - January 2020

go-figure *(Sensibill)* - Golang
- A runtime micro-service configuration bus designed to allow for zero-downtime configuration changes in critical and production environments. Supports both synchronous and asynchronous configuration busses.

go-locals *(Sensibill)* - Golang
- A goroutine identification and threadlocal library.

roam *(Sensibill)* - Golang
- A much faster alternative Golang static reflection runtime. Addresses issues in the default Golang reflection runtime that causes reflective access operations to take several orders of magnitude longer than they should.

gomains *(Sensibill)* - Golang
- A lightweight and fast runtime struct serialization and deserialization framework, built on **roam**.

gas *(Sensibill)* - Golang
- A simple runtime assertion library designed with safety and traceability in mind. Gas provides constructs to prevent and deal with erroneous use of API boundaries, for both fatal and non-fatal failures.

September 2019 - present

baron - C, C++, CMake, JNI, JVMTI
- A reverse engineering framework built on top of fake-jni designed to be a mostly automatic black-box JNI module and JVMTI agent runtime disassembler.

February 2019 - present

CX - C++, CMake
- A header-only, stl and libc independent, C++20 concepts, template meta-function and runtime utility library. Features include advanced compile-time traits, zero-allocation generic runtime closures, deferral and error handling mechanisms, and much more.

January 2019 - present

fake-jni - C, C++, CMake, JNI, JVMTI
- A JNI and JVMTI instrumentation and interposition framework. Features include platform agnosticism, JNI-header agnosticism, a high-level JNI and JVMTI interposition API, seamless native class and function definitions, advanced JNI and JVMTI API boundary profiling and much more.

Competitions

March 22-23, 2019	**Massey Hacks V**
February 1, 2019	**Woburn Challenge Online Round 3**
December 14, 2018	**Woburn Challenge Online Round 2**
December 7, 2018	**15th Windsor Regional Secondary School Programming Competition**
November 16, 2018	**Woburn Challenge Online Round 1**
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**, *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*