

PHILIPPE VIBIEN

Greater New York Area
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SUMMARY

Over 5 years of experience in the development of hardware and software. Well versed in modern software engineering practices and tooling for web, desktop, embedded, and mobile environments. Skilled in PCB layout, simulation, and signal integrity analysis. Recently completed my Master's in Electrical & Computer Engineering, with a specialization in computer software, at the University of Waterloo.

KEY SKILLS

Computer Languages	Python, C#, JavaScript, C++, Java
Protocols & APIs	REST, ProtoBuf, MQTT, Kafka
Embedded Platforms	ARM M4, AVR Family, Espressif ESP8266,
Databases	SQLite, MySQL, PostgreSQL
Software Tools	Matlab, KiCad, Keysight ADS, GNURadio
Languages	Fluent English and French, Basic Spanish

WORK EXPERIENCE

Embedded Software Group - University of Waterloo

2019 - 2022

Electrical & Computer Engineering Researcher

Waterloo, ON

- Collaborated with the **fast paced and multi-disciplinary** Embedded Software Research Group at the University of Waterloo on topics related to the security of real-time safety-critical software systems.
- **Designed, developed and tested** software as part of research experiments and result analysis. Created a **machine learning pipeline** spanning sample acquisition, data storage and retrieval with SQL, model refinement, and result visualization. **Developed firmware** for an embedded microcontroller used in an automated data acquisition system. Applied **continuous integration** to existing custom in-house tools and scripts to reduce build and deployment times by 26%. Worked predominantly with the following languages: Python, C++, C#, and Matlab. Used **Git, SVN, and Jira** to track changes and collaborate with colleagues.
- Responsible for the **design, layout, assembly, and commissioning of circuit boards** for various research projects, most notably, a 16 port 4.5 GHz RF multiplexing board. Used Keysight ADS to **simulate and validate** performance of board designs, used signal integrity results to edit layout, improve insertion loss & isolation metrics, and reduce cross-talk. Created **reusable sub-designs** for power supplies and mutli-port RF connectors, allowing standardization across boards and a reduction in future design efforts.
- Managed various subcontractors to source parts, assemble circuit boards, and specify acceptance testing criteria. Performed **Xray analysis** to determine why critical component in RF path failed during solder reflow. Used findings to edit solder paste mask and **increased solder success rate from 40% to 100%**.

- Contributed to all parts of the research process, including grant writing, experiment design and setup, data collection, analysis, report writing, and delivering presentations to stakeholders on progress and results. Provided assistance to colleagues on technical matters and issues related to software development, signal integrity and electrical engineering. Assisted in the writing of papers for academic journals, and patent applications.

Bersak Consulting

2017 - 2019

Electrical Engineering Consultant

New York, NY

- Provided **engineering and consulting services** to several technology and design firms throughout the New York City area. Clients included: ApprenticeFS, Auto I, DogSpot, Leadoff Studio, McCann and Wolf Gordon.
- Responsible for **embedded software development** and the layout of **printed circuit boards** on various projects. Sourced required components and established supply chain relationships.
- Performed **fault finding and troubleshooting** on existing electrical and software systems. Used findings to redesign sub-systems and improve maintenance practices. Worked with manufacturing partners to incorporate design changes into future production runs.
- Interfaced directly with clients to outline project requirements, milestones, and possible design solutions. Assisted in the creation and assembly of **demonstration prototypes** used to illustrate functionality.

GuardBot Robotics

2012 - 2017

Electrical Engineer

Stamford, CT

- Designed a **Command & Control (C2) protocol** for a new series of robotic vehicles. Wrote a corresponding Interface Control Document (ICD) and software tooling to allow implementations to be tested against the specifications.
- Worked with management and engineering team to develop manufacturing plans, drawings and procedures for a **small volume production** run of robotic vehicles. Refined quality control procedures and designed sub-assembly and final assembly task procedures.
- **Oversaw subcontractor performance** on PCB design, control system software development and manufacturing of parts; managing results and incidents.
- Contributed to several BOM's, RFP's, RFQ's, white papers, proposals and system specifications for various vendors and government agency customers.

EDUCATION

University of Waterloo

2019 - 2022

Master of Applied Science (MAsc), Electrical & Computer Engineering

Thesis: *A Method for the Detection of Counterfeit, Compromised or Tampered Electronic Devices*

Cumulative GPA: 4.0 (Numerical: 94/100)

University of Waterloo

2013 - 2019

Bachelor of Applied Science (BAsc), Honours Electrical Engineering

Conferred with Distinction