Marc-André Vigneault

Junior Engineer & M.Sc

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Programming

	Level	Experience
Python	●●●●◐	9y.
TypeScript	●●●○○	2y.
Embedded C	●●●○○	2y.
Bash Scripting	●●●○○	3y.
MATLAB	●●◐○○	1y.

Languages

	Spoken	Written
Français	●●●●●	●●●●●
English	●●●●○	●●●●○
Español	●●●○○	●●◐○○

Computing

VCS, git, CI/CD	●●●●○
Software Development	●●●●○
MCAD (Freecad, SLDWRKS)	●●●●○
ECAD (KiCAD, Altium)	●●●◐○
System Admin, Networking	●●●◐○
AI MCP Integration	●●●○○
Adobe Suite	●●●○○

Strenghts

Disciplined
Leadership
Curious
Adaptability
Motivated
Team Work
Synthesis
Teaching

Interests

Wave Physics
Photonics
ML
Programmation
Neuroscience
Electromagnetism
Environnement
Teaching
Project Managment
Signal Processing
Simulations
Modelisation
Electronics
Embedded
Exploration
Learning

Experiences in Engineering

2022–2025 Space and Defense System Engineer — ABB, Québec

- Member of the EDOSS project, contributing to the plannification, conception and manufacturing phases of a large constellation of advanced EO instruments.
- Coordinated investigations of complex optical issues across multidisciplinary teams
- Designed and implemented software solutions for flight-grade testing and manufacturing, including operator control platforms, automation tools, and efficient algorithms
- Produced manufacturing and testing procedures for flight-grade instruments
- Authored version-controlled technical documentation for internal teams and clients
- Assembled and tested highly specialized instruments in cleanroom environments following NASA workmanship standards

2020–2022 Biophotonics Master Researcher — CERVO Brain Research Center, Québec

- Developed a Monte Carlo light propagation and diffusion simulator for biological tissues in Python and OpenCL for cross-platform hardware acceleration
- Applied Surface-Enhanced Raman Spectroscopy techniques
- Improved two-photon video microscopy systems
- Performed data analysis and created custom tools in Python
- Managed and maintained laboratory computer systems and servers (system admin)

2019-2020 Systems Engineering Intern — ABB, Québec

- Supported production and design activities for Guided Wave Radar/LWT products
- Contributed to the design phase of advanced technology products
- Developed automation scripts and provided support for automation developers
- Participated in the design and implementation of product testing workflows

2018-2019 Biophotonics Engineering Intern — BliQ, Québec

- Assembled one-photon and two-photon microscopy systems
- Contributed to the development of volumetric two-photon microscopy solutions
- Characterized axicon and other optical components
- Authored documentation, reports, and troubleshooting guides for existing systems

Education

2022 M. Sc. - Master in Biophotonics — Université Laval, Québec
GPA : 3.94/4.33

2020 B. Eng. - Physics Engineering — Université Laval, Québec
GPA : 3.56/4.33

2016 College - Natural Sciences — Cégep de Sainte-Foy, Québec
GPA : 34.207

Community Involvements

2019-2020 Founder of REDCO (Student Project) — Université Laval, Québec

2018-2020 Payload Lead (Aerospace Group UL) — Université Laval, Québec

2018-2020 Teaching assistant — Université Laval, Québec

2019 Student Council Executive Member — Université Laval, Québec

Engineering Certifications

. Clean Room Flight Manufacturing (2024)
. ESD Manipulations (2024)
. SIMDUT 2015 (2023)
. Laser Security (2022)
. Electricity Security (2018)

Other Certifications

. IYT Sail Crew (2024)
. Canadian Firearm License (2022)
. CSA-1 Avalanche Terrain (2022)
. Climbing Instructor (2020)
. First Aid (2017)