Selim Belhaouane

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/selimb
selimbelhaouane

Resourceful software engineer with 8+ years building diverse software systems, including web applications, developer tools, and CAE automation. Known for solving complex challenges and adapting quickly, with a proven track record as a self-taught tech lead. Passionate about distributed systems, automation, and databases. Eager to learn from others and equally enthusiastic about teaching and sharing knowledge.

experience

GardaWorld and ECAMSECURE — **Montreal, Canada**
Team Lead — *2022-Now*
Started and lead development of a remote video monitoring solution leveraging AI technology, generating millions in revenue within a few years.

- Led the design and implementation of a full-stack web application.
- Designed and implemented a fault-tolerant, scalable architecture to handle over 2 million daily video events.
- Developed flexible software abstractions and sophisticated configuration management to accommodate diverse use cases.
- Enabled hybrid operation modes, seamlessly integrating edge and cloud computing for efficiency and flexibility.
- Managed and mentored a team of five, driving successful delivery of a complex system under tight resource constraints.

Python | Typescript | React | Next.js | Rust | PostgreSQL | Redis | Azure | Docker

MAYA Heat Transfer Technologies Ltd. — **Montreal, Canada**
Team Lead — *2020-2022*
Started and led full-stack development of *Remote Simulation*, an on-premise distributed HPC platform integrated with Siemens Simcenter 3D, a leading CAD/CAE product.

- Architected and developed the entire system, including a backend web server, frontend single-page application, Simcenter 3D GUI plugin, and distributed job runners.
- Enabled real-time solution monitoring and interactive visualizations for improved simulation workflows.
- Delivered a seamless integration with Simcenter 3D, enhancing user experience and productivity in high-performance simulation environments.
- Led a team of four engineers, fostering collaboration and growth.

Python | Django | FastAPI | React | Typescript | Cypress | Nginx | PostgreSQL | Docker | C++ | Qt

Technical Lead — *2017-2020*
Led development of Siemens Simcenter 3D plugins to enhance functionality and improve productivity for mechanical engineering workflows.

- Led software development guild meetings after just a year on the project, coordinating efforts and sharing best practices across a large organization.
- Developed a Python library and tools for rapid application prototyping, empowering mechanical engineers to streamline their workflows; authored extensive documentation and training materials to support adoption.
- Onboarded, code-reviewed, and provided guidance to junior developers, fostering growth and maintaining high-quality code standards.

Python | C++ | .NET Framework

education

M.Eng Thesis — **McGill University**
Mechanical Engineering — *2015-2017*
Master's in computational fluid dynamics, sponsored by Maya Heat Transfer Technologies.

- Thesis on implementation and validation of turbulence model in academic and commercial (NX Flow) finite volume codes.
- Used NX Open, Tecplot and Python for pre-processing and/or post-processing purposes.
- Developed web interface for querying the in-house test suite, now an essential part of the development process.

Python | Matplotlib | Tecplot | C++ | Fortran | MPI | jQuery | LaTeX

B.Eng — **McGill University**
Mechanical Engineering — *2011-2015*

- Designed and manufactured carbon fiber steering wheel as part of Capstone project with McGill Racing Team.
- Gave extracurricular classes on LaTeX.

Python | MATLAB | C | Fortran | LaTeX