VINCENT BEAULIEU

Member of the Ordre des ingénieurs du Québec (OIQ)

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Data Science Skills

Programming Languages	C, C++, C#, Go, Java, JavaScript, Kotlin, MATLAB (Simulink), Objective-C, Python, R, Ruby
Web Development	CSS, Django, Flask, HTML, JavaScript, Node.js, React.js
Database & Data Management	SQL, mySQL, NoSQL, Snowflake, SnowSQL, Oracle, Relational Databases, Data Lake, Data Warehouse, Data Modeling, Data Governance, Data Security
Data Engineering	Apache Spark, Apache Kafka, Azure Databricks, Hadoop, ETL & ELT, Data Pipelines, Big Data Processing
AI Frameworks & Data Science	scikit-learn, TensorFlow, PyTorch, Huggingface Transformers, Ollama, AI/ML Techniques, Statistics, Data Visualization (Tableau, Power BI, Alteryx)

Software Development Skills

Development Methodologies	Agile (SCRUM, Kanban), CI/CD, Version Control (Git)
Cloud & DevOps	Docker, Kubernetes, Kubeflow, Azure DevOps, Terraform, GCP, AWS
Software Design	OOP, Design Patterns, RESTful API Design, Technical Documentation, MVC (Model View Controller), Microservices
IDEs	CLion, Colab, Eclipse, IntelliJ, JupyterLab, Pycharm, Visual Studio, Xcode

Embedded Systems Skills

Programming & Scripting	Ada, Rust, Assembly (ASM, NASM), Shell (bash, batch, csh, PowerShell, sh, zsh)
Systems & Platforms	QNX (RTOS), FPGA, Arduino, Raspberry Pi, Intel Edison, NVIDIA Jetson Nano
HDL & Simulation Tools	VHDL, Verilog, Cadence, ModelSim, Synopsys, Vivado, Xilinx
CAD & PCB Design Tools	AutoCAD, Fusion 360, KiCad, PSpice
Processor Architectures, ISAs, and SoCs	CISC (Motorola m68k, x86, x64), RISC (ARM Cortex-A, Cortex-M, AVR, Broadcom MIPS, PowerPC, RISC-V)

Languages

Bilingual **French** and **English** (mother tongues)

Educations

Collège Lionel-Groulx – Sainte-Thérèse, Québec
(2014 – 2017) **DEC.** Natural Science

Concordia University – Montréal, Québec
(2017 – 2020) **B.ENG.** Industrial Engineering (Unfinished)
(2020 – 2025) **B.ENG.** Computer Engineering, **Option:** Biological and Biomedical Engineering (BME)

Professional Experiences

Software Developer & Architect | Temporary full-time **(37.5 hours / week)**

D360 Consulting | Montréal, Québec ***October 2023 – February 2024***

Impacts:

- Complete automation of the production of their digital product
- **30x increase** of the initial production rate (**from 8 to 225 daily reports**)
- Freeing up human resources to focus on business development

Accomplishments:

- Development of architectures and workflows on N8N for automation.
- Implementation of artificial intelligence solutions, OpenAI Whisper and Azure GPT.
- Integration with Google Cloud Platform, Firebase, Zoho, Clickup, and PowerBI.
- Python and JavaScript development (Backend). With Postman as an API integration testing tool.
- Documentation of the application of security and data governance practices (Bill 25).
- Implementation of secure ETL/ELT solutions that comply with Law 25.
- Work in an AGILE CI/CD development environment with SCRUM methodology.

Technologies:

Python, JavaScript, OpenAI Whisper, Azure GPT, N8N, ClickUp, Google Cloud Platform, Firebase, Zoho Analytics, Postman, Bill 25 Compliance, AGILE (SCRUM), ETL/ELT

Teaching Assistant | Part-time contract **(7 hours / week)**

Concordia University | Montréal, Québec ***September 2022 – December 2023***

- Student support, exam marking and assignment correction.
- Assistance to teachers in the preparation of teaching materials and laboratory sessions.

Cloud, Big Data & AI Developer | Permanent full-time **(37.5 hours / week)**

Progranova Inc.| Laval, Québec ***June 2020 – January 2023***

Accomplishments:

- Design and development of data processing and analysis solutions.
- Implement storage and machine learning solutions on AWS.
- Management of the Snowflake platform, and Integration of Hadoop, Spark, Kafka, Azure Databricks.
- Configure, monitor, and maintain data warehouses, tables, and views.
- Optimize system performance and stability.
- Training and support to users/customers on best practices in Big Data and AI.

Technologies:

Python (scikit-learn, tensorflow, pandas), Hadoop, Apache Spark, Apache Kafka, AWS (EC2, S3, SageMaker), GCP (Compute Engine, Cloud Storage), Azure Databricks, Alteryx, Snowflake, SnowSQL, SQL, noSQL, Tableau, DevOps, ETL\ELT, Bill 25, CI/CD, GitLab, Docker, OpenShift, Kubernetes.

Pharmacist Assistant | Temporary full-time **(40 hours / week)**

Independent pharmacies, Uniprix, Clinics, Familiprix | Laval, Québec ***February 2017 – August 2018***

- Management of medication orders and prescription processing using Telus software and coordination with suppliers and insurers.
- Compounding medications, including Dispills and Compounding, and managing the distribution of refrigerated medications through Microsoft Access.
- Use of advanced dispensing machines (Parata Systems, ScriptPro) and assistance to pharmacists in patient care according to protocols.

Seller | Full-time **(35 hours / week)**

BestBuy | Saint-Jérôme, Québec ***March 2015 – August 2015***

Night Clerk | Part-time **(25 hours / week)**

Costco Wholesale | Saint-Jérôme, Québec ***November 2014 – January 2017***

Academic Highlights

Role: Computer Engineering Collaborator

Development of a Simulation System for Aircraft Surveillance (AMS)

Concordia University | Montréal, Québec ***September 2022 – April 2023***

- Design and development of on-board systems for air traffic control (ATC) simulators, including aircraft trajectory modeling and radar communications management.
- Development of real-time software under QNX for monitoring critical systems.
- Collaboration with multidisciplinary teams.
- Compliance with aeronautical standards (OD-178C, ARP4754A).
- Writing of technical documentation, including functional specifications and validation reports.

Role: Computer Engineering Collaborator & Tech Lead

Capstone Project – Transradial Robotic Prosthetics with Machine Learning Model

Concordia University | Montréal, Québec ***August 2021 – June 2022***

- Tech Lead of an AGILE team of 6 engineers in the realization of an embedded system for transradial robotic prosthesis, integrating machine learning for muscle pattern recognition.
- Project management with Trello and Git.
- Design and shared development of the AI architectures and data processing models.
- Modeling and manufacturing of the prosthesis, and printed circuit boards (PCBs) with KiCad, PSpice, Fusion 360.

Role: Biomedical Engineering Collaborator & Co-Project Leader

Blood Diagnostic Biosensor for Nutritional Deficiency

Concordia University | Montréal, Québec ***January 2022 – May 2022***

- Co-led a multidisciplinary team of 4 members in the design of genetic biosensors for the screening of nutritional deficiencies.
- Use of MATLAB and Python for data processing and analysis, as well as for modeling and simulating genetic circuits.
- Leveraged GenBank, iGEM, and Benchling to analyze genetic sequences, integrate BioBrick parts, and design genetic circuits.

Role: Biomedical Engineering Collaborator & Spokesperson

Novel microfluidic device for intracytoplasmic sperm injection (ICSI) in the context of in vitro fertilization (IVF)

Concordia University | Montréal, Québec ***September 2021 – January 2022***

- Collaboration with a biologist in the development of a new high-throughput microfluidic device capable of performing ICSI-IVF fertilization without human intervention.
- Design and modeling of the lab-on-chip device with Fusion 360.
- Exploration of 3D printing, photolithography, and micro-fabrication techniques.
- Design of a control system for the automation of the fertilization process.

Role: Biomedical Engineering Collaborator & Co-Team Leader

Development of microfluidic device for high-throughput bacterial transformation

Concordia University | Montréal, Québec ***September 2021 – January 2022***

- Co-led a multidisciplinary team of 6 members in the design of a high-throughput bacterial transformation and incubation microfluidic device.
- Use of MATLAB for Computational Fluid Dynamics.
- Exploitation of micro-channels, droplets within channels, and digital micro-fluidics (DMF).
- Design and modeling of the lab-on-chip microfluidic device in Fusion 360.
- Exploration of 3D printing, photolithography, and micro-fabrication techniques.

Research, Publications, and Contributions

Analysis of fMRI data at the individual subject level

https://github.com/vincbeaulieu/ELEC_445-6671_Final-Project ***January 2023 – May 2023***

- Investigated the effects of slice-timing correction order and realignment in preprocessing on General Linear Model (GLM) statistical maps in single-subject analysis (SSA).
- Co-authored a report on the impact of pre-processing orders on contrast (T1, T2) in neuroimaging.

Automated transcription and audio summary

https://github.com/vincbeaulieu/AudioReportAI ***March 2023***

- Development of a solution for automating report writing, audio summarization, and business processes.

Prediction of Hepatitis D virus (HDV) ribozyme self-cleavage and ligation with machine learning

https://github.com/vincbeaulieu/HDV-LIG14 ***December 2021 - September 2022***

- Development of a database for the analysis of hepatitis virus RNA sequences.
- Automation of RNA folding computations with database population using Shell and Python.
- Development of a tool for visualizing the probability map of RNA nucleotide-to-nucleotide affinity.

Personal Projects

Design of an Electric Handcrafted Motorcycle

Personal initiative ***June 2018 – June 2020***

- Development of an electric motorcycle adhering to the standards of Transport Canada and the Société de l'Assurance Automobile du Québec (SAAQ) and SAE norms (SAE J1772).
- Designed a custom battery management system (BMS) and developed the electrical wiring system.
- Created an IoT tracking and access device with ThingsBoard.io, integrating UBlox Neo-M8N (GPS), Pycom GPY (LTE, WiFi, Bluetooth), Particle Boron 2G/3G, and NFC communication.
- Developed an ABS system to improve safety, and PID for cruise control.
- Configured a master-slave system using two Arduino Nano to control all accessories.
- Metal work, CNC, 3D printing, welding, soldering…

Training & Certifications

Udemy:

- Ultimate SnowPro Core Certification Course & Exam **(Udemy, 2020)**
- Deep Learning and Computer Vision A-Z™: OpenCV, SSD & GANs **(Udemy, 2019)**
- Artificial Neural Network for Regression **(Udemy, 2019)**
- Artificial Intelligence A-Z™, Machine Learning A-Z™, Deep Learning and NLP A-Z™ **(Udemy, 2018)**
- Master Data Structures & Algorithms (C/C++) **(Udemy, 2017)**

Udacity:

- Intro to TensorFlow for Deep Learning **(Udacity, 2018)**
- Android TV and Google Cast Development **(Udacity, 2016)**

Coursera:

- Serverless Data Analysis with Google Big Query and Cloud Dataflow **(Coursera, 2018)**

In person:

- Generative AI with AWS (+ Introduction to AWS Bedrock) **(Québec, 2024)**
- Google Cloud Platform – Big Data and Machine Learning **(Montréal, 2018)**

Honours and Scholarships

Invitation to Showcase at the Chancellor's Builders Circle and Friends Dinner (CBC) (2022)
Concordia University | Montréal, Québec ***2022***

- ***Meet 5 of Concordia's 51,000 outstanding students*** - *Concordia Next-gen (2022)*
  https://www.youtube.com/watch?v=9VM5O8velT4
- ***2022 Chancellor's Builders Circle and Friends Dinner (CBC)*** - *Concordia Alumni Pics*
  https://www.flickr.com/photos/concordiaalumnipics/albums/72177720303366435

Department of Electrical & Computer Engineering Honorable Mention Award (2021 – 2022)
Concordia University | Montréal, Québec ***2021 – 2022***

- *in recognition of an excellent Undergraduate Capstone Project entitled "Prosthetic Limb"*

Excellence Scholarships in Computer Science, Computer Engineering and Computer Construction, and Electrical, Electronic, and Communications Engineering (2021)
Office of the Minister of Higher Education | Québec City, Québec ***2021***

Commitments and Affiliations

- *Member of the Ordre des ingénieurs du Québec (OIQ)* ***September 2023 – Present***
- *Member of Genium360* ***2021 – Present***
- *Member of the District 3 Bio cohort* ***2024 – 2025***

Media

GitHub: https://github.com/vincbeaulieu | LinkedIn: https://www.linkedin.com/in/vincbeaulieu
YouTube: https://www.youtube.com/@vincbeaulieu | Twitter: https://twitter.com/Vinc_Beaulieu