Nicholas **Nadeau**

Professional Engineer (P.Eng.), Doctor of Philosophy (Ph.D.)

Montréal, Canada

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Work

Nadeau Innovations

Montréal, Canada

Founder — *2017 -*

- Offered fractional CTO services to advance AI/ML and robotics in startups and growth companies.
- Assisted executive teams with strategic planning and roadmaps.
- Coached managers and team leads on agile project execution and operations.

Halodi Robotics

Montréal, Canada & Oslo, Norway

CTO — *2021 - 2023*

- Developed a new humanoid robot for security guarding and expanded the team to 50+ employees across 4 countries.
- Secured the largest contract ever for humanoid robots with ADT Commercial (140 robots), raised $10M in Series A funding, and raised $24M in Series A2 with OpenAI.
- Managed software development, architecture design, and internal infrastructure implementation.

BRIDGR

Montréal, Canada

Advisor — *2020 -*

- Provided expertise on team growth, architecture, and special projects in robotics and Industry 4.0.
- Mentored through the Techstars AI Montréal accelerator.
- Facilitated critical introductions for business development.

AON3D

Montréal, Canada

Engineering Manager — *2018 - 2021*

- Headed engineering and secured $11.5M Series A funding for high-performance 3D printing systems.
- Directed software and hardware development, product strategy, and certification efforts.
- Managed SR&ED Tax Incentive Program, securing $300K+ in tax refunds.

YPC Technologies

Montréal, Canada

Technology Advisor to the CEO — *2017 - 2018*

- Advised CEO during startup accelerator, resulting in $1.8M seed funding from top investors.
- Led engineering team for robotics and software design for FounderFuel Demo Day.
- Collaborated on strategy and execution with the CEO.

Rogue Research Inc.

Montréal, Canada

R&D Engineer — *2011 - 2018*

- Developed a novel robotic veterinary neurosurgery system, including algorithms and hardware design.
- Created biomedical devices for TMS, NIRS, DBS, and image-based neuronavigation.
- Contributed to advancements in computer vision and neuroscience.

Education

École de technologie supérieure

Montréal, Canada

Ph.D. - Precision and Collaborative Robotics — *2014 - 2019*

- Thesis: Towards the Development of Safe, Collaborative Robotic Freehand Ultrasound
- Development of AI/ML models and algorithms for physical human-robot interaction, controller tuning, and robot calibration.
- Creator of *Pybotics*, a published open-source Python toolbox for robotics calibration, kinematics, ML/AI, and optimization.

McGill University

Montréal, Canada

B.Eng. - Mechanical Engineering, Biomedical Engineering Minor — *2010 - 2014*

Skills & Certifications

Certifications	Associate Value Specialist (SAVE International), Open Water Diver (PADI), Professional Engineer (Ordre des ingénieurs du Québec)
Engineering	Confluence, GitHub, GitLab, Jira, KiCAD, SOLIDWORKS
Software	Balena, CMake, Docker, Flask, Gradle, gRPC, Linux, Make, PyTorch, REST API, ROS, TensorFlow, Yocto
Programming	C/C++, Java, LaTeX, Node.js, Python
Languages	English, French

Recent Publications

2020 **Improved Test Methods for Polymer AM Inter-Layer Weld Strength and Filament Mechanical Properties**, Richard G. Cole, Kazem Fayazbakhsh, Abraham Avalos, Nicholas A. Nadeau. ASTM International Conference on Additive Manufacturing (ICAM).

2019 **Towards the development of safe, collaborative robotic freehand ultrasound**, Nicholas A. Nadeau. École de technologie supérieure.

2019 **Pybotics: Python Toolbox for Robotics**, Nicholas A. Nadeau. The Journal of Open Source Software.

2019 **Impedance Control Self-Calibration of a Collaborative Robot Using Kinematic Coupling**, Nicholas A. Nadeau, Ilian A. Bonev. MDPI Robotics.

2018 **Evolutionary Motion Control Optimization in Physical Human-Robot Interaction**, Nicholas A. Nadeau, Ilian A. Bonev. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2018 **An Extrinsic Dexterity Approach to the IROS 2018 Fan Robotic Challenge Modality B**, Jennifer Kwiatkowski, Jean-Philippe Roberge, Nicholas A. Nadeau, Louis L'Écuyer-Lapierre, Vincent Duchaine. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2017 **Characterization of a robotic micro-surgical system for small-animal neurosurgery**, Nicholas A. Nadeau, Alexandru Ciobanu, Fred Lamer, Mathieu Coursolle, Sean McBride, Stephen Frey, Roch Comeau. Society for Neuroscience.

Recent Talks

2022-10 **The Applications of Pybotics**, Seattle Robotics Society

2022-08 **Applying Key Hardware Design Considerations**, Design to Product Podcast

2022-01 **Careers in Robotics**, Dallas ISD STEM Expo

2021-10 **Let's talk robotics with Dr. Nicholas Nadeau!**, Let's Talk Robotics Podcast

2021-10 **Safe and Capable Robots**, IEEE-EMBS Robotics Webinar

2021-04 **Hiring for Inclusive Robotics**, Silicon Valley Robotics - Society, Robots, and Us

2021-04 **Hardware in the Loop: Training Robot Contact in an Unstructured Environment**, Montréal-Python 85

2020-04 **Making Materials Matter**, Dyndrite Developer Conference 2020

2018-10 **Evolutionary Motion Control Optimization in Physical Human-Robot Interaction**, 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2017-11 **Calibrating Robots with Python**, PyCon Canada 2017

Volunteer & Committees

2022 **Startup Mentor**, Next AI

2022 **Startup Mentor**, Creative Destruction Lab (CDL)

2021 **Technical Committee ISO/TC 299 - Robotics**, Standards Council of Canada Mirror Committee

2020 **Mentor**, Techstars Montréal AI Accelerator

2020 **Mentor**, FounderFuel Startup Accelerator

2020 **Member of Technical Expert Panel & Mentor**, Code Life Ventilator Challenge for COVID-19

2020 **Reviewer**, Sensors, MDPI

2019 **Reviewer**, Journal of Applied Mathematical Modelling

2019 **Reviewer**, International Journal of Advanced Robotic Systems (IJARS)

2018 **Committee F42 on Additive Manufacturing Technologies**, ASTM International

2018 **Reviewer**, The Journal of Open Source Software (JOSS)