

Nicholas Nadeau

PROFESSIONAL ENGINEER (P.ENG.), DOCTOR OF PHILOSOPHY (PH.D.)

Montréal, Canada

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Work

Nadeau Innovations

Montréal, Canada

FOUNDER

2017 -

- Provided [fractional CTO services](#) to startups and growth companies looking to jumpstart innovation initiatives in AI/ML and robotics.
- Empowered executive teams with company strategy and roadmap advising.
- Supported managers and team leads with execution through agile project and operations coaching.

Halodi Robotics

Montréal, Canada & Oslo, Norway

CTO

2021 - 2023

- Led the development of a new humanoid robot design for security guarding.
- Led company [recruitment and growth](#) to 50+ employees in 4 countries.
- Led pilot projects with enterprise customers leading to the single biggest contract ever for humanoid robots ([140 robots to ADT Commercial](#)).
- Led software development, team management, architecture design, and implementation of internal infrastructure.
- Successful [Series A funding of \\$10M with Valinor and ADT Commercial](#).
- General manager of Halodi Robotics Canada Inc.

BRIDGR

Montréal, Canada

ADVISOR

2020 -

- Expert advisor assisting with team growth, architecture, and special projects (e.g., robotics, Industry 4.0) and critical introductions.
- Mentor through the Techstars AI Montréal accelerator.

AON3D

Montréal, Canada

ENGINEERING MANAGER

2018 - 2021

- Head of engineering and executive team member through [\\$11.5M Series A with SineWave Ventures, AlleyCorp, and Y Combinator](#).
- Led engineering team management, [software and hardware development](#), [product direction](#), and certification to develop [high-performance 3D printing and additive manufacturing systems](#).
- Responsible for Scientific Research and Experimental Development (SR&ED) Tax Incentive Program (\$300K+ in tax refunds).

YPC Technologies

Montréal, Canada

TECHNOLOGY ADVISOR TO THE CEO

2017 - 2018

- Advised CEO throughout FounderFuel startup accelerator, leading to a [\\$1.8M seed with Hike Ventures, Real Ventures, and Toyota AI Ventures](#).
- Led a team of engineers and directed robotics and software design, development, and implementation for FounderFuel Demo Day.

Rogue Research Inc.

Montréal, Canada

R&D ENGINEER

2011 - 2018

- Led the development of a [novel robotic veterinary neurosurgery system](#), including trajectory generation algorithms, computer vision, and hardware design.
- Developed [biomedical devices and systems](#) for transcranial magnetic stimulation (TMS), near-infrared spectroscopy (NIRS), deep brain stimulation (DBS), and image-based neuronavigation.

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

- Improved Test Methods for Polymer AM Inter-Layer Weld Strength and Filament Mechanical Properties**, 2020 Richard G. Cole, Kazem Fayazbakhsh, Abraham Avalos, Nicholas A. Nadeau. ASTM International Conference on Additive Manufacturing (ICAM).
- Towards the development of safe, collaborative robotic freehand ultrasound**, 2019 Nicholas A. Nadeau. École de technologie supérieure.
- Pybotics: Python Toolbox for Robotics**, 2019 Nicholas A. Nadeau. The Journal of Open Source Software.
- Impedance Control Self-Calibration of a Collaborative Robot Using Kinematic Coupling**, 2019 Nicholas A. Nadeau, Ilian A. Bonev. MDPI Robotics.
- Evolutionary Motion Control Optimization in Physical Human-Robot Interaction**, 2018 Nicholas A. Nadeau, Ilian A. Bonev. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).
- An Extrinsic Dexterity Approach to the IROS 2018 Fan Robotic Challenge Modality B**, Jennifer Kwiatkowski, 2018 Jean-Philippe Roberge, Nicholas A. Nadeau, Louis L'Écuyer-Lapierre, Vincent Duchaine. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).
- Characterization of a robotic micro-surgical system for small-animal neurosurgery**, 2017 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)