

# Nicholas Nadeau

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

Montréal, Canada

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## Work

### Halodi Robotics

Montréal, Canada & Oslo, Norway

CTO

2021 -

- 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).

### Nadeau Innovations

Montréal, Canada

FOUNDER

2017 -

- Provide fractional CTO services, technical development, roadmap planning and strategy, and team building support.

### 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

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

## Recent Publications

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- 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

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- 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

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- 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)