Nicholas **Nadeau**

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

Montréal, Canada

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Work

AON3D *Montréal, Canada*

Engineering Manager *2019 -*

- Head of software and hardware engineering, and member of executive team.
- Oversee the design, development, testing, and deployment of innovative solutions for challenging problems in the additive manufacturing domain.
- Ensure robust, scalable, reusable, efficient, production-quality software and hardware is being delivered to the organization.
- Usher and evangelize adoption of engineering best-practices and agile methodologies.
- Set the roadmap and budgets, drive detailed planning, and ensure execution of deliverables for a medium sized team.
- Manage the company-wide SR&ED program.
- Mentor and help bringing up of new team members, interviewing and hiring of new team members, ensure technical development of team.

AON3D *Montréal, Canada*

Senior R&D Engineer *2018 - 2019*

- Responsible for innovation and technology development to drive 10x revenue.
- Introduced automated data collection framework to help drive business and engineering decisions.
- Engineering ScrumMaster, responsible for ensuring the team has everything they need to deliver value.

YPC Technologies *Montréal, Canada*

Technology Advisor to the CEO *2017 - 2018*

- Advised CEO throughout FounderFuel startup accelerator in order to go to market and raise seed capital.
- Led a team of engineers and directed robotics and software design, development, and implementation.
- Recommended long-term approach to strategic suppliers and technologies with the aim of optimizing operations and delivering savings.

Rogue Research Inc. *Montréal, Canada*

R&D Engineer *2011 - 2018*

- Led mechanical research, design, and development of brain imaging, cognitive neuroscience, and robotic products.
- Led the development of a novel robotic veterinary neurosurgery system, including trajectory generation algorithms, computer vision, and hardware design.
- Developed 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*

PhD - Precision and Collaborative Robotics *2014 - 2019*

- Thesis: Towards the Development of Safe, Collaborative Robotic Freehand Ultrasound
- Created machine learning models and genetic algorithms for physical human-robot interaction.
- Invented a novel, robust, low-cost robot calibration platform.

McGill University *Montréal, Canada*

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

Certifications & Professional Affiliations

Professional Engineer (P.Eng.) Ordre des ingénieurs du Québec (OIQ)
Associate Value Specialist (AVS) SAVE International
Committee F42 on Additive Manufacturing Technologies ASTM International
Open Water Diver Professional Association of Diving Instructors (PADI)

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.

Talks

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

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

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

2017-10 **Speaker - Calibrating Robots with Python**, Montréal-Python 67

2016-12 **Keynote - Robotics and Neuroscience**, Clearpoint Elementary Exhibition Summit

2015-06 **Speaker - Medical Robotics**, McGill Faculty of Medicine Explore Camp

Professional Development

2020-03 **Colombia Recruiting Mission**, VanHack *Medellin, Colombia*

2020-02 **3nd ASTM Additive Manufacturing Center of Excellence Workshop**, ASTM International *El Paso, USA*

2019-11 **Formnext 2019**, *Frankfurt, Germany*

2019-09 **2nd ASTM Additive Manufacturing Center of Excellence Workshop**, ASTM International *Senlis, France*

2019-05 **RAPID + TCT 2019**, SME *Detroit, USA*

2018-10 **2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)**, IEEE *Madrid, Spain*

2017-11 **Neuroscience 2017**, Society for Neuroscience *Washington, USA*

2017-01 **MUSE 1.0 Bedside Ultrasound Course for Primary Care Clinicians**, McGill University Steinberg Centre for Simulation and Interactive Learning *Montréal, Canada*

2016-11 **Neuroscience 2016**, Society for Neuroscience *San Diego, USA*

2016-05 **Collaborative Robots Workshop**, RIA International *Boston, USA*

Awards & Grants

2015 **Alexander Graham Bell Canada Graduate Scholarship,** NSERC
2014 **Mitacs Accelerate Industrial Research Grant,** Mitacs

Volunteer

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
2019 - **Reviewer,** Journal of Applied Mathematical Modelling
2019 - **Reviewer,** International Journal of Advanced Robotic Systems (IJARS)
2018 - **Reviewer,** The Journal of Open Source Software (JOSS)

Skills

Languages English, French
Software Illustrator, Linux, MS Office, Photoshop, SolidWorks, Ubuntu, Windows
DevOps CircleCI, Docker, GitLab CI/CD, Travis CI,
Back-end Flask, Protocol Buffers (protobuf), REST API
Front-end HTML5, Hugo, React
Programming C/C++, Java, JavaScript, LaTeX, Node.js, Python, TypeScript
Machine Learning Keras, OpenCV, scikit-learn, TensorFlow
Source Control Git, Subversion (SVN)