

FULL-STACK ROBOTICIST

philippe.nadeau@robotics.utias.utoronto.ca (514) 358-6309 \diamond http://philna.de/au/is

EDUCATION

PhD in Aerospace Science and Engineering

2020-2025 (anticipated)

Robotics Specialization - Robotics Institute

STARS Lab, University of Toronto Institute for Aerospace Studies

Supervisor: Prof. Jonathan Kelly

Thesis: Autonomous Object Handling in Collaborative Robotics

Average of 4.0/4.0

Automated Manufacturing Engineering

2016-2020

Departement of Systems Engineering

École de Technologie Supérieure, Montréal

Graduated with honors - Average of 4.25/4.3

PREVIOUS ROLES

Senior AI Developer

2025-Present

Physical AI, Vention

Developing cutting-edge solutions enabling robots to autonomously perform complex industrial tasks in unstructured physical environments.

Visiting Researcher, UC Berkeley

Summer 2019

Embodied Dexterity Group (EDG) with Prof. Hannah Stuart

Force prediction for underwater dexterous manipulation using recurrent neural networks.

Research Assistant Spring 2019

Command and Robotics Laboratory (CoRo) with Prof. Vincent Duchaine

Simulation for contact-rich manipulation tasks and model-based reinforcement learning.

Biofeedback control engineering through machine learning

Summer 2018

Imaging and Orthopedics Research Laboratory with Prof. Rachid Aissaoui

Optimized haptic feedback of a wheelchair simulator through reinforcement learning.

Development and operations (DevOps)

2015-2017

Sliq Media Technologies

Development and management of our continuous integration system.

MAJOR AWARDS & SCHOLARSHIPS

NSERC - Canada Graduate Scholarship - Doctoral	(115,000\$) 2022-2025
Ontario - Queen Elizabeth II Graduate Scholarship in Science and Technological	gy (15,000\$) 2021
FRQNT - Master's Research Scholarship (Ranked 1st)	(35,000\$) 2020
NSERC - Alexander Graham Bell Canada Graduate Scholarship - Master's	(17,500\$) 2020
Vector - Vector Scholarship in Artificial Intelligence	(17,500\$) 2020
Various - 10 other scholarships and awards	(27,000\$) 2018-2020

RECENT PEER-REVIEWED PUBLICATIONS

As first author:

Robustness Assessment of Assemblies in Frictional Contact

IEEE Transactions on Automation Science and Engineering 2025

Under Review

Stable Object Placement Planning From Contact Point Robustness

IEEE Transactions on Robotics 2025

<u>Visual Part Segmentation for Inertial Parameter Identification of Manipulated Objects</u> <u>Published IEEE International Conference on Robotics and Automation 2023</u>

Published

Fast Object Inertial Parameter Identification for Collaborative Robots

Published

IEEE International Conference on Robotics and Automation 2022

Tactile sensing based on fingertip suction flow for submerged dexterous manipulation

The entire sensing based on fingertip suction flow for submerged dexterous manipulation

Published P

Others:

Published in IEEE International Conference on Robotics and Automation 2022, IEEE International Conference on Automation Science and Engineering 2021

TECHNICAL ABILITIES

Robot perception & planning:

- Robot vision (meshing, recognition, registration) with geometrical and learned methods
- Force sensing from joint torque estimates or wrist sensor

Kinematics & Dynamics:

- Rigid-body dynamics (quaternions, kinematics, inertia, equations of motion, screw theory)
- Contact mechanics (friction models, multi-object stability constraints)

Simulation & Optimization:

- Usage of Bullet, NVIDIA PhysX, Gazebo simulators
- Optimization with Pyomo, MOSEK, IPOpt, OSQP, and with learning-based approaches
- Model identification and calibration from sensing data

Others:

- Software development: C++, Python, Bash, Git
- ROS: Experience with MoveIt, ROS drivers package development
- Robots: Experience with Universal Robots, Franka Emika, xArms
- CAD: Experience with Solidworks, OnShape, Solidedge

Look at my online portfolio!

COMMUNICATION

Proficiency in French and English (TOEFL score: 111/120)

Editor for the Canadian Science Fair Journal - Comp. Sci., Math & Physics 2021-2024

Translator for the Canadian Robotics Council ongoing

Reviewer for the IEEE International Conference on Robotics and Automation,

IEEE Transactions on Robotics, IEEE Robotics and Automation Magazine

VOLUNTEERING & OUTREACH

Judge for the University of Toronto Robotics Hackathon	2024,2025
Canadian Artificial Intelligence & Robot Vision Conference	2022
Retail & Manufacturing Robotics Workshop	2021
Baccalaureate program development committee	2018-2020
Co-Founder and vice-president of the non-profit "Camp Frontenac"	2016-2021
Co-Founder, President of AlTech Fabrication Lab	2013-2014
Scout leader in the 229 th group ($\approx 400 \text{ hours/year}$)	2011-2018