

Jana Pavlasek

PhD Candidate, Robotics

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- EDUCATION** *PhD, Robotics* *Expected 2024*
University of Michigan, Ann Arbor, MI, USA
- GPA: 4.0/4.0
 - Member of the Laboratory for Progress, supervised by Prof Chad Jenkins.
- Bachelor of Electrical Engineering (Honours)* September 2013 – December 2017
McGill University, Montreal, QC, Canada
- GPA: 3.73/4.0
- JOURNALS**
- [1] A. Opipari, **J. Pavlasek**, C. Chen, S. Wang, K. Desingh, O. C. Jenkins. DNBP: Differentiable nonparametric belief propagation. *ACM Transactions on Data Science*, 2023. *[To Appear]*
- CONFERENCE PAPERS**
- [2] E. Olson, **J. Pavlasek**, J. Berry, O. C. Jenkins. Counter-Hypothetical Particle Filters for Single Object Pose Tracking. *International Conference on Robotics and Automation (ICRA)*, May 2023. *[To Appear]*
- [3] S. Lewis, **J. Pavlasek**, O. C. Jenkins. NARF22: Neural Articulated Radiance Fields for Configuration-Aware Rendering. *International Conference on Intelligent Robots and Systems (IROS)*, October 2022.
- [4] X. Chen, K. Zheng, Z. Zeng, S. Basu, J. Cooney, **J. Pavlasek**, O. C. Jenkins. Manipulation-oriented object perception in clutter through affordance coordinate frames. *Humanoids*, 2022.
- [5] **J. Pavlasek**, S. Lewis, K. Desingh, O. C. Jenkins. Parts-based articulated object localization in clutter using belief propagation. *International Conference on Intelligent Robots and Systems (IROS)*, October 2020.
- WORKSHOP PAPERS**
- [6] E. Olson, **J. Pavlasek**, J. Berry, O. C. Jenkins. Counter-Hypothetical Particle Filters for Single Object Pose Tracking. In *IROS 2022 Workshop Probabilistic Robotics in the Age of Deep Learning*, October 2022.
- [7] A. Opipari, **J. Pavlasek**, C. Chen, S. Wang, K. Desingh, O. C. Jenkins. Differentiable nonparametric belief propagation. *IEEE ICRA 2022 Workshop on Robotic Perception and Mapping: Emerging Techniques*, May 2022.
- [8] K. Desingh, **J. Pavlasek**, C. Kokenoz, O. C. Jenkins. Tracking large scale articulated models with belief propagation for task informed grasping and manipulation. In *RSS Workshop on Task-Informed Grasping*, June 2019.
- [9] **J. Pavlasek**, K. Desingh, O. C. Jenkins. Scene understanding using part-based object affordances. In *RSS Workshop on Women in Robotics*, June 2019.
- [10] S. Masnadi, J. J. LaViola Jr, **J. Pavlasek**, X. Zhu, K. Desingh, O. C. Jenkins. Sketching affordances for human-in-the-loop robotic manipulation tasks. In *ICRA Workshop on Robot Teammates Operating in Dynamic, Unstructured Environments*, May 2019.
- AWARDS**
- Towner Prize for Outstanding GSIs Honorable Mention* April 2023
- NSERC Postgraduate Scholarship* Sept 2021 – Present
- Robotics Institute Fellowship* Sept 2018 – Apr 2019
- McGill Faculty of Engineering Scholarship* Sept 2017 – Apr 2018
- NSERC Experience Award* May – Aug 2016
- NSERC Undergraduate Student Research Award* May – Aug 2014

TEACHING

ROB 102: Intro to AI and Programming, Co-Instructor Fall 2021, 2022
University of Michigan

ROB 102: Intro to AI and Programming, Course Developer Jan - Aug 2021
University of Michigan

ROB 501: Mathematics for Robotics, Graduate Student Instructor Fall 2019
University of Michigan Fall 2020

EECS 467: Autonomous Robotics, Graduate Student Instructor Winter 2020
University of Michigan

ECSE 211: Design Principles & Methods, Teaching Assistant Winter 2016
McGill University Fall 2017

WORK EXPERIENCE

Nvidia Robotics Lab | Research Intern May – Oct 2022
 Seattle, Washington, USA
Supervised by Professors Tucker Hermans, Fabio Ramos and Dieter Fox

- Developed novel research methodology for inference-based planning to implicit goal distributions.

Mobile Robotics Lab | Research Assistant Feb 2018 – July 2018
 McGill University, Montreal, QC, Canada
Supervised by Professors Greg Dudek, Joelle Pineau and Dave Meger

- Managed a funded project with a team of nine graduate students.
- Developed systems for active preference learning for autonomous driving.
- Developed infrastructure and simulators for autonomous driving research projects.

Mobile Robotics Lab | Honours Thesis Sept 2016 – May 2017
 McGill University, Montreal, QC, Canada
Supervised by Professors Gregory Dudek and David Meger

- Designed a robotic system which learns by human demonstration to collect visual data using various supervised learning techniques.
- Designed and performed research experiments for the robotic system.

Clearpath Robotics | Autonomy Intern May 2017 – Aug 2017
 Kitchener, ON, Canada

- Profiled the autonomy system. Identified inefficiencies and implemented optimizations in the control system.
- Improved run-time and performed real-world validation of an obstacle classification system. Integrated obstacle classification into the navigation system.

Clearpath Robotics | Software Development Intern May 2016 – Aug 2016
 Kitchener, ON, Canada

- Designed a ROS package in C++ to display predictive indications of intention on a mobile robot using an LED strip.
- Built associated tools for development and unit testing of the ROS package.

GE Lighting | EEDP Software Intern May 2015 – Dec 2015
 Lachine, QC, Canada

- Designed Python tools for interfacing with embedded systems.
- Developed scripts for an automated testing suite. Developed a web application to autonomously configure custom hardware after manufacturing.

**SERVICE &
EXTRA-
CURRICULAR**

Outreach Chair | Robotics Graduate Student Council Jan 2019 – Jan 2021
University of Michigan, Ann Arbor, MI, USA

- Organized outreach activities for students from the local community ranging from elementary to high school.

Software Division Leader | McGill Robotics Aug 2016 – Aug 2017
McGill University, Montreal, QC, Canada

- Designed the architecture for a fully autonomous underwater vehicle with ROS.
- Supervised and contributed to the development of the software system, including controls, localization, sensor processing and autonomy software.
- Led a team of 18 undergraduate students. Organized and ran tutorials on programming and robotics concepts for new students.

Co-Director of Technology | RoboHacks Jan 2016 – Apr 2016
McGill University, Montreal, QC, Canada

- Organized hardware and robotics platforms to be made available to robotics hackathon participants for a one-day hackathon event.
- Designed tutorials for hackathon participants of various experience levels.

Robotics Systems Designer | McGill Robotics Sept 2013 – July 2016
McGill University, Montreal, QC, Canada

- Designed a power distribution PCB created in kiCAD for an autonomous underwater vehicle and participated in full system integration and testing.
- Led design, implementation and testing of a PCB in DipTrace to process audio signals using a microcontroller programmed in C with a team of 8 students.
- Developed custom software for control of an autonomous underwater vehicle using ROS and Python.