

Bhavishey Thapar

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EDUCATION

UNIVERSITY OF TORONTO

AEROSPACE ENGINEERING

(ROBOTICS)

2023 | MEng.

UNIVERSITY OF WATERLOO

MECHATRONICS ENGINEERING

2019 | BAsC.

CERTIFICATION

UNIVERSITY OF TORONTO

CONTINUING EDUCATION

2022 | Data Science.

ENGINEER IN TRAINING

PROFESSIONAL ENGINEERS

ONTARIO (PEO)

2020-Present

RYERSON UNIVERSITY

CONTINUING EDUCATION

2017 | iPhone & Android App

Developer

SKILLS

- C
- C++
- Python
- Machine Learning
- ROS
- Matlab
- Simulink
- SQL
- Fusion 360
- Linux
- Machine Tools
- Microcontrollers
- Autodesk Eagle
- Raspberry Pi

AWARDS

General Motors Design Seed Fund

Magna New Mobility Award

INTERESTS

Tennis
Reading
Writing
Woodworking

WORK EXPERIENCE

MDA | ROBOTICS & SPACE OPERATIONS INTERN

May 2022 - August 2022 | Brampton, ON

- Developed Deep Learning AI solutions to improve operations, and monitor system health for CanadaArm2 aboard the International Space Station.
- Implemented ML networks using LSTM in Python and Keras for predictive maintenance of MDA's robotic hardware.

GEOTAB | AUTOMOTIVE SUPPORT ENGINEER

July 2019 - July 2021 | Oakville, ON

- Leveraged Big Data and API's to create Python Notebooks enabling support engineers and customers to find quick resolutions related to product issues.
- Responsible for creating technical documentation as Subject Matter Expert (SME) for company wide automotive and gateway related queries.

PARAGON SYSTEMS | MECHATRONICS ENGINEERING INTERN

Sept 2017 - December 2017 | Concord, ON

- Part of an award-winning team for successfully building and delivering automated end of line testing machines for Brose in Michigan.
- Fabricated and installed structural, pneumatic and electric systems on power seat assembly testers for Daimler AG, Ford and Volvo.

HONDA OF CANADA | MECHATRONICS ENGINEERING INTERN

Jan 2017 - April 2017 | Alliston, ON

- Awarded a Kaizen for creating a hand tool to help assembly workers solve problems related to door manufacturing.
- Tested and inspected manufacturing processes to improve product quality.

BOLTON RAILINGS INC. | MECHATRONICS ENGINEERING INTERN

Jan 2017 - April 2017 | Alliston, ON

- Created shop drawings of stair and railing parts for the carpenters using Compass, a CNC compatible software geared towards designing stairs.
- Hands on experience in working with wood and wood working tools, operating CNC machines to create staircase parts.

WATERLOO REGIONAL POLICE SERVICES | IT STUDENT

Sept 2014 - December 2014 | Waterloo, ON

- Handled inbound calls to provide technical support to the company employees working with a team of IT and network specialists.
- Planned and coordinated the purchase, installation and implementation of police automation hardware and software according to the enterprise standards and procedures.

A&C TOOL INC. | MECHANICAL ENGINEERING INTERN

Jan 2014 - April 2014 | Bowmanville, ON

- Drafted machine drawings and SolidWorks assemblies for lifting beam and scrap bins to be used by Ontario Power Generation (OPG) and Gerdau Steel Mills in Whitby.
- Experienced in using industrial machinery and techniques such as Welding, CNC, Flame Cut, selection of industrial hardware such as fasteners, plates, sheet metal.
- Wrote technical reports for designs based on data collected from FEA simulations for engineer approval.

COURSEWORK

GRADUATE

Deep Learning
Neural Networks
Machine Learning
State Estimation
Computer Vision
Mobile Robotics
Path Planning
Development Of UAVs
Advanced Data Engineering

UNDERGRADUATE

MEMS
Autonomous Vehicles
Multivariable Controls
Digital Controls
Power Electronics
Image Processing

OTHER

PLC
Welding
Java
Embedded Programming

ADDITIONAL EXPERIENCE

UNIVERSITY OF TORONTO AEROSPACE TEAM | AVIONICS TEAM

Sept 2021 - May 2022 | Toronto, ON

- Working towards developing a system for a fixed wing UAV to detect landing zones using object detection algorithms running on a stereo camera with the goal of successfully landing the UAV on a landing zone.

ROBOT ARM CONTROLLER

Jan 2019 - April 2019 | Waterloo, ON

- Designed a feedback controller in MATLAB for a non-linear two link robot arm MIMO system using a Kalman filter as the state estimator.
- Implemented the controller using the LQG optimal control technique.

SCALED AUTONOMOUS CITY

Sept 2018 - March 2019 | Waterloo, ON

- Built a 1/18th scaled city for autonomous drive testing.
- Designed PCBs in Eagle as breakout board for the scaled autonomous vehicles.
- Used computer vision techniques and OpenCV to create an algorithm for lane detection in Python.

WATERLOO ALTERNATE FUELS TEAM | ELECTRICAL TEAM

Sept 2018 - January 2019 | Waterloo, ON

- Conducted research for motor selection to re-engineer a 2018 Chevrolet Blazer as part of the EcoCAR 4 competition to reduce vehicle emissions.
- Designed motor mounts in Siemens NX to integrate the motor into the car.

DIGITAL THEREMIN

May 2018 - August 2018 | Waterloo, ON

- Created a music instrument controlled without physical contact from the player using Atmega328, IR distance sensor, a reflectance sensor written in C.
- Interfaced with sensors using communications protocols such as UART, I2C.

AUTONOMOUS UNDERWATER VEHICLE

Jan 2018 - March 2018 | Waterloo, ON

- Designed and built an underwater ROV capable of guiding through underwater obstacles and were placed 2nd in the competition.
- Used a Raspberry Pi single board computer with an ARM processor to interface with sensors and electronic speed controllers for the BLDC motors.

WATERLOO SUBMARINE TEAM | FABRICATIONS TEAM

Jan 2017 - September 2018 | Waterloo, ON

- Fabricated and machined parts for human powered submarines for international submarine competitions.