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Data-Driven Motion Planning using Machine Learning Algorithms



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***ENPM808A: Introduction to Machine Learning***

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# Introduction

## Background Study

* + 1. Robot Navigation
    2. Path Planning
    3. Data-Driven Model Approach

## Project Details

* + 1. Culmination of all concepts

# Problem Statement

## Description

## Agenda

# Data Collection

## Resources

## Organization

# Feature Engineering

## Features from Laser Scan Data

## Features from Positional Data

## Outputs {features to be modeled}

## Final features

## Feature verification

* + 1. Correlation
    2. Standard deviation

# Other preprocessing steps

## Data scaling

## Data Separation

# Model Selection and Testing

## Pipeline

## Model selection

## Linear Regression

## Neural Networks

## Verification

# Training the selected model

# Hyperparameter Tuning

# Regularization

# Estimation of Out of sample error

# Challenges faced

# Conclusion