



MIE498H1: Research Thesis 2024-2025

Supervisor	Justin Beland
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Number of Positions	2
Open to	Undergraduate Mechanical and Industrial Engineering Students
Term Offered	Winter 2025
Research Area	Applied Machine Learning – Probabilistic Optimization
Research Topic	Bayesian optimization under uncertainty via entropy based acquisition functions

Project Description

We will investigate the efficacy of entropy search based methods in the context of Bayesian optimization under parameter uncertainty. That is, we study how these search methodologies can be applied to the setting where we have uncertainty in the input parameters of an optimization problem (i.e., x is uncertain in $\min f(x)$). We will investigate this problem theoretically and also carry out numerical studies to demonstrate the efficacy of the proposed approach.

Additional Information	NA
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Application Instructions	Please send your CV and unofficial transcript to justin.beland@utoronto.ca
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