



# Colloquium Series

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## Introduction to Gaussian Processes for Regression

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**Abstract:** Gaussian processes (GP), first developed in probability theory, have recently found profound applications in regression problems. We will build GPs by first starting from normal and multivariate normal distributions and the Bayesian statistics to build up the preliminaries of Gaussian process regression. We will discuss the two priors of GPs, their mean and covariance functions, and explain their influence in the regression setting. Lastly, we will apply Gaussian process regression in the setting of computer experiments, where we construct  $\sin(x)$  by interpolating nearby points.

**Keywords:** Gaussian process regression, probability theory, Bayesian statistics, interpolation

Wednesday September 23, 1:05 – 1:50pm