1176-62-31 **Emily T Winn***, emily_winn@brown.edu, and **Maryclare Griffin** and **Lorin Crawford**.
Revisiting the Effect Size Analogue for Variable Selection in Nonlinear Regression. Preliminary report.

Despite their high predictive accuracy, a well-known limitation of nonlinear and nonparametric regression is the lack of an interpretable effect size or regression coefficient for each input feature or explanatory variable. Previous work has shown that when the covariance of nonparametric functions is shift-invariant (e.g., the radial basis kernel in Gaussian processes), one can use properties of reproducing kernel Hilbert spaces (RKHS) to define a linear vector space that can be projected onto the original explanatory variables and serve as an analog of effect size estimates. In this talk, we will revisit the effect size analog and present a more robust projection operator which is both computationally efficient and can preserve the nonlinear structure of large-scale datasets. Motivated by the importance of capturing non-additive variation in genome-wide association studies, we will use simulations and real data to demonstrate the much-improved utility of this new effect size analog in two important task settings: association mapping and phenotypic prediction. (Received January 05, 2022)