

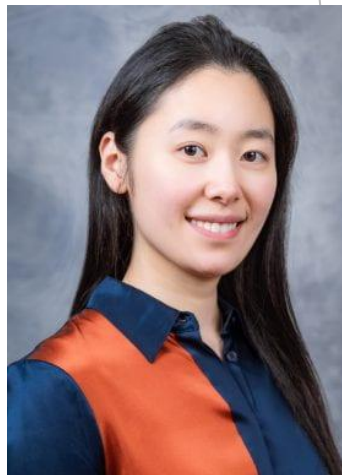
# Division of Biostatistics Seminar Series

**Predicting the onset of breast cancer  
using mammogram imaging data**

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**When:** Friday, April 16, 2021  
12:30pm - 1:30 pm

**Registration Link  
via Zoom:**

<https://wustl.zoom.us/join/register/tJYlduurqjosE9Hp10dOy51SQ502a60y9MWT>



## Title: Predicting the onset of breast cancer using mammogram imaging data

With mammography being the primary breast cancer screening strategy, it is essential to make full use of the mammogram imaging data to better identify women who are at higher and lower than average risk. Our primary goal in this study is to extract mammogram-based features that augment the well-established breast cancer risk factors to improve prediction accuracy. With the consideration of building a prognostic model for precision prevention, we present a novel supervised functional principal component analysis (sFPCA) method to extract features on mammograms that are highly correlated with failure time under the presence of right-censoring. The proposed method is accompanied with an eigenvalue decomposition algorithm that is computationally efficient. The sFPCA method is empirically shown to perform well in simulation studies. We further illustrate the proposed method in the motivating dataset from the Joanne Knight Breast Health cohort at Siteman Cancer Center, where it is shown to retain a superior discriminatory performance compared to conventional methods.