

Spring Colloquium

March 19, 3:30-4:30pm
Seitz 313

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Underpinning Genetic Causes for Age-related Macular Degeneration and Its Progression: Methods and Applications

Age-related Macular Degeneration (AMD) is a progressive neurodegenerative disease, which is the leading cause of blindness in the developed world. Multiple factors including aging, genetics and smoking are associated with AMD development and its progression. In this talk, I will present recent novel development in our long-term study of AMD using large-scale genetic and fundus image data. These methods include (1) efficient copula-based modeling and test for bivariate interval-censored data, (2) gene-based association analysis for bivariate time-to-event data through functional regression, and (3) deep-learning-based prediction methods for AMD development and progression. Both statistical and computational aspects that are critical in understanding AMD pathogenesis and progression, as well as their in-depth applications, particularly in the era of big data, will be discussed.