

BI-CO MATHEMATICS COLLOQUIUM

Jordan Dworkin
University of Pennsylvania

"Statistical modeling and analysis of magnetic resonance imaging data"

Monday, November 18, 2019

Talk at 4:00 – Hilles 109

Tea at 3:30 – Hilles 208, Math Lounge

Abstract:

Medical imaging technology has allowed for unparalleled insight into the structure and function of the human brain, giving clinicians powerful new tools for disease diagnosis and monitoring. Yet the complex and high-dimensional nature of imaging data makes computational analysis challenging. Here, we discuss two recent advances in the use of brain MRI data for studying multiple sclerosis. First, we describe how local texture in brain images can be used to uncover historical information about tissue damage. Second, we propose a method for flexibly detecting unknown group differences across imaging types. Using simulated and real data, we illustrate the performance of these methods, and discuss the obstacles and opportunities for their use clinical practice.

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