The University of Chicago
Department of Statistics

First Year PhD Presentation

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# The $C$-alpha Statistics for Testing Complex Traits Associations with Rare Genetic Variants

**TUESDAY, May 22, 2012, at 5:00 PM**

110 Eckhart Hall, 5734 S. University Avenue

## ABSTRACT


I will present the paper, "Testing for an Unusual Distribution of Rare Variants" (Neale, B.M., Rivas, M.A., Voight, B.F., Altshuler, D., Devlin, B., et al., 2011). Sequencing studies are increasingly being conducted to identify rare variants associated with complex traits such as diseases; indeed, these rare variants are likely to play a significant role in disease etiology. We will review a few statistical approaches to test disease associations with rare variants. The proposed $C$-alpha test is a non-burden based test that produces greater power if variants are a mixture of neutral, risk, and protective effects. This test is a special case of kernel regression, and can be regarded as testing on a variance component in a random-effects model.


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