



DEPARTMENT of ISE  
UNIVERSITY of HOUSTON

ISE FRIDAY SEMINAR

BROADEN HORIZONS | EXTEND MINDS



Dr. Ben Grimmer  
Department of Applied Mathematics and Statistics

Johns Hopkins University

Baltimore, MD

**Date:** Friday, April 10, 2026

**Time:** 1 - 1:50 pm

**Location:** SW 101

### ***Beyond Minimax Optimality: A Subgame Perfect Gradient Method***

**Abstract:** This talk will take up the task of designing the provably best possible gradient method for smooth convex optimization. Methods with big-O optimal worst-case guarantees were (famously) discovered in the 80s by Nesterov. Methods with exactly minimax optimal worst-case guarantees were developed in the last decade. We will present a “subgame perfect” method that is not only optimal against a worst-case problem instance but also optimally leverages all gradient information revealed at each step. This corresponds to being dynamically minimax optimal, or in game theory terms, provides us with a subgame perfect strategy for optimization. An adaptive version of our subgame perfect gradient method will be presented, achieving state-of-the-art performance that rivals BFGS.

**Biography:** Ben Grimmer is an assistant professor of applied mathematics and statistics at Johns Hopkins University, supported by AFOSR and as a Sloan Fellow. Ben’s work primarily focuses on novel methods for the design and analysis of first-order methods, recently receiving best paper prizes, including the most recent INFORMS Optimization Societies Young Researcher Prize. Some of his recent computer-assisted works have received substantial interest, being featured in popular mathematics venues like Quanta.

**Zoom Meeting ID:** 970 7656 5407

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