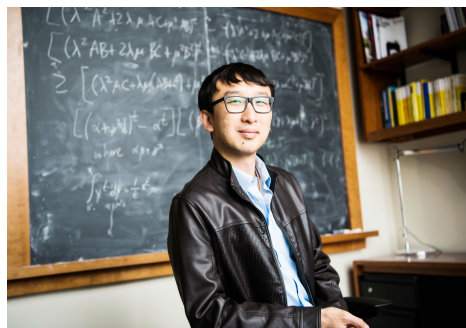


The University of Chicago Computer Science Department

**PRESENTS:**

## **“Enumerating k-SAT functions”**



**Yufei Zhao, PhD**  
**Assistant Professor, MIT**

**Abstract:** How many k-SAT functions on  $n$  boolean variables are there? What does a typical such function look like? Bollobás, Brightwell, and Leader conjectured that for each fixed  $k$ , almost every  $k$ -SAT function is unate. In this talk, I will discuss progress towards this conjecture and explain how the hypergraph container method can be used to reduce the problem to a hypergraph Turán-like problem, which is solved for  $k \leq 4$  but remains open in general. Joint work with Dingding Dong and Nitya Mani

**Bio:** Yufei Zhao is Assistant Professor of Mathematics at the Massachusetts Institute of Technology. He received his PhD from MIT in 2015 and has previously held positions at Oxford, Berkeley, Stanford, and Microsoft Research. He has been awarded the SIAM Dénes König prize (2018), the Sloan Research Fellowship (2019), and the NSF CAREER Award (2021). His research tackles a broad range of problems in discrete mathematics, including extremal, probabilistic, and additive combinatorics, graph theory, and discrete geometry, as well as applications to computer science.

**Tuesday, March 29, 2022**

**KENT 107, 3:30 pm**

**Host: Alexander Razborov**

People in need of assistance should call 773-702-6614 in advance.

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