

*Department of Mathematics,  
University of California San Diego*

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## **Department Colloquium**

# **Spencer Frei**

UC Berkeley

### **Statistical and computational phenomena in deep learning**

#### **Abstract:**

Deep learning's success has revealed a number of phenomena that appear to conflict with classical intuitions in the fields of optimization and statistics. First, the objective functions formulated in deep learning are highly nonconvex but are typically amenable to minimization with first-order optimization methods like gradient descent. And second, neural networks trained by gradient descent are capable of 'benign overfitting': they can achieve zero training error on noisy training data and simultaneously generalize well to unseen data. In this talk we go over our recent work towards understanding these phenomena.

Ioana Dumitriu

**November 28, 2022**

**4:00 PM**

**APM 6402**

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