

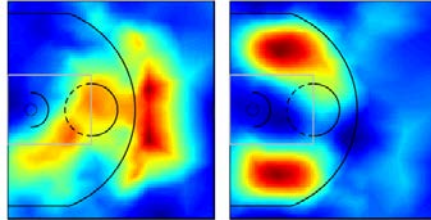
# Think Spatial

The UCSB brown-bag forum on spatial thinking

*Presents*

**Alexander Franks**

Department of Statistics  
University of California, Santa Barbara



**From Pixels to Points:**

**Using Tracking Data to Measure Performance in Professional Sports**

Tuesday, November 21, 2017

12:00 p.m.

**3512 Phelps Hall**

**ABSTRACT:**

New optical tracking technologies are increasingly used to gather high resolution spatial and time series data in professional sports. In the National Basketball Association (NBA), the technology is used to record the positions of the players and the ball at 25 frames/second, yielding hundreds of millions of observations per season. In this talk, I will describe a series of spatio-temporal models for quantifying the game of basketball. By blending Bayesian hierarchical models with geography inspired mapping tools, we will shed light on previously unidentified aspects of play. Specifically, we develop models to describe spatial variation of defensive ability, the value of decision-making and propose a model for clustering player trajectories. Importantly, efficient inference requires models that pool information both between players and across space. Although we apply these methods to professional basketball data, we emphasize the applicability of our methods to a wide range of domains.

**BIO:**

Alex Franks is an Assistant Professor in the Department of Statistics and Applied Probability. His research interests include covariance estimation, multivariate analysis and high dimensional data, errors-in-variables models, missing data, and spatio-temporal methods. His primary focus is on applications in computational and systems biology. He is also a member of XY Research ([xyresearch.com](http://xyresearch.com)), a group that conducts research in sports statistics with a focus on player-tracking data.