

**University of California, Irvine
Statistics Seminar**

***Statistical Methods for Evaluating Forensic Evidence:
The Case of Shoe Prints***

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**Thursday, February 16, 2017
4 p.m., 6011 Bren Hall
(Bldg. #314 on campus map)**

Our overall research goal is to utilize statistical methods in order to verify a match between crime scene shoeprints and a suspect's shoe. The degree of rarity for a given shoe print is defined as the probability that a random shoeprint has a pattern of faults (or "accidental marks") that is similar to the shoeprint in question, meaning that the accidentals appear in exactly the same locations and have exactly the same orientations and shapes. This presentation will examine a more specific issue: the methods used to estimate the probability of accidentals appearing at a certain location on the shoe sole. Questions related to the complexity of the case under discussion will be raised. A second issue that will be discussed involves the basic assumption that accidentals and their characteristics (location, shape and orientation) are independent of each other and that for this reason the rarity of a shoe can be determined in a simple manner. However, if, as will be demonstrated, these marks and characteristics are not independent, the current form of assessment may need to be reconsidered.

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