UTRGV

School of Mathematical and Statistical Sciences

Colloquium Series

Statistics meets CSI: The Critical Role of Statistics in Evaluating Forensic Evidence

Dr. Karen Kafadar

Abstract

In his book, "Why the Innocent Plead Guilty and the Guilty Go Free" (2021), the Honorable Judge Jed Rakoff describes "paradoxes of our broken legal system" which include a false reliance on eyewitness identification and faulty forensic science. "CSI" portrays inferences from forensic evidence as highly reliable, as convincing for convictions and exclusions as forensic DNA. Are results from fingerprint analyses, bullet and toolmark identifications, and bite marks as trustworthy? Have statisticians been involved in developing procedures for analyzing data from forensic evidence and designing validation studies, as they have in many areas of science, including chemistry (chemometrics), biology (genomics), medicine (clinical trials), and agriculture (crop yields)? The involvement of statistics in forensic science has not been nearly as extensive, given its importance (ensuring proper administration of justice) and its demonstrated value thus far (e.g., forensic DNA, assessment of bullet lead evidence, significance of findings in the U.S. anthrax investigations). In this talk, I will provide three examples where statistics played a vital role in evaluating forensic evidence. I then will suggest ways where statisticians and scientists can work together to strengthen forensic science to achieve its mission: reducing error rates (false positives and false negatives) and raising the level of confidence in the criminal justice system.

Short Bio of the Speaker

Dr. Karen Kafadar is Chair & Commonwealth Professor of Statistics at the University of Virginia. Her research focuses on statistical methods & data analysis in the physical, chemical, biological, and engineering sciences. She received her BS & MS from Stanford and her PhD from Princeton and has held positions at NIST, Hewlett Packard, National Cancer Institute, University of Colorado-Denver and Indiana University. She co-authored several reports for the National Academy of Sciences, including Strengthening Forensic Science in the U.S. (2009) and the Anthrax Investigation (2011). Her most recent work concerns statistical methodology for problems in eyewitness identification, Forensic science, and randomized cancer screening trials. She is past Editor of JASA Reviews, Technometrics, and Annals of Applied Statistics, co-PI on NIST-Funded Center of Statistical Applications in Forensic Science, and was 2019 American Statistical Association President.

Date: Monday, September 19, 2022

Time: 4:00-5:00 pm CT

IN PERSON: EEDUC 2.102 | BLHSB 2.312

Zoom: https://utrgv.zoom.us/j/88598297778

For further information or for special accommodations, please contact Dr. Alexey Glazyrin via email alexey.glazyrin@utrgv.edu and Dr. Tamer Oraby via email tamer.oraby@utrgv.edu