



POPULATION FOOTWEAR FORENSICS PROJECT

PROJECT GOALS

- Develop a shoe scanner that can gather population footwear data automatically
- Use the scanner to gather images of shoe soles from the population
- Identify features in the shoe sole patterns that make for a relatively unique description of the pattern
- Use pattern descriptions to characterize the types of shoes worn by a population

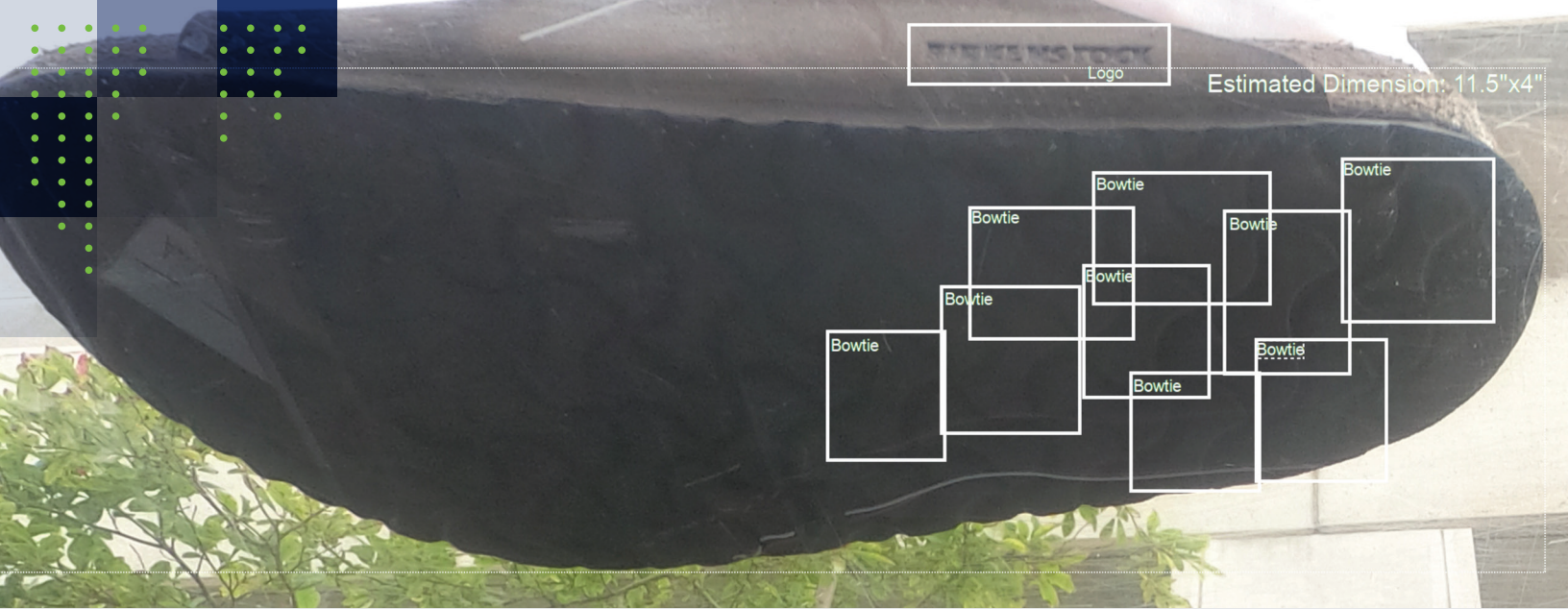
SCANNER PROGRESS

- **Version 1:** Outdoor, weather-resistant, fully functional scanner that can collect data for 24h+ at a time
- **Version 2 (coming soon):** Lighter weight, designed for use indoors as well as outdoors



Image of a shoe sole from the scanner. Cameras housed in the scanner body capture the shoe sole with minimal additional details about the wearer captured. The scanner's cameras are tuned so that details more than 12" from the surface are not in focus.





Mock-up of feature identification goal. Not all features are clearly visible in the picture, but those which are clear are identified and labeled.

AUTOMATIC IDENTIFICATION OF FOOTWEAR PATTERN FEATURES

GOALS

- Automatically identify features such as pattern element shape, brand logos, size (pattern indicated and nominal) with an estimated confidence level
- Use identified features to characterize the shoe
- Identify other shoes with similar features for comparison



WORK WITH US!



We are looking for practitioners and law enforcement partners to collect data from local populations. If you are interested, please contact project leader Susan VanderPlas at susan.vanderplas@unl.edu.