

A Longitudinal Database of Athletic Shoe Outsole Wear

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Study Design

Shoes

- 160 pairs
- Models: Adidas Seeley, Nike Winflo
- 2 sizes each in Men and Women's shoes
- Worn for a minimum of 10,000 steps per week
- Returned every 5 weeks for assessment
- Initial collection + 3 wear assessments

Methods

1. Pressure Scanner (initial visit, barefoot & with shoes)
2. 2D Digital Scanner
3. 3D Laser Scanner
4. Digital Camera
5. Film and Powder Prints
6. Paper and Powder Prints
7. Simulated Crime Scene Style Prints

Data Collection Procedures: Documentation at
https://github.com/CSAFE-ISU/Longitudinal_Shoe_Study

Data Collection Methods



Fig. 1: Paper + Powder Print

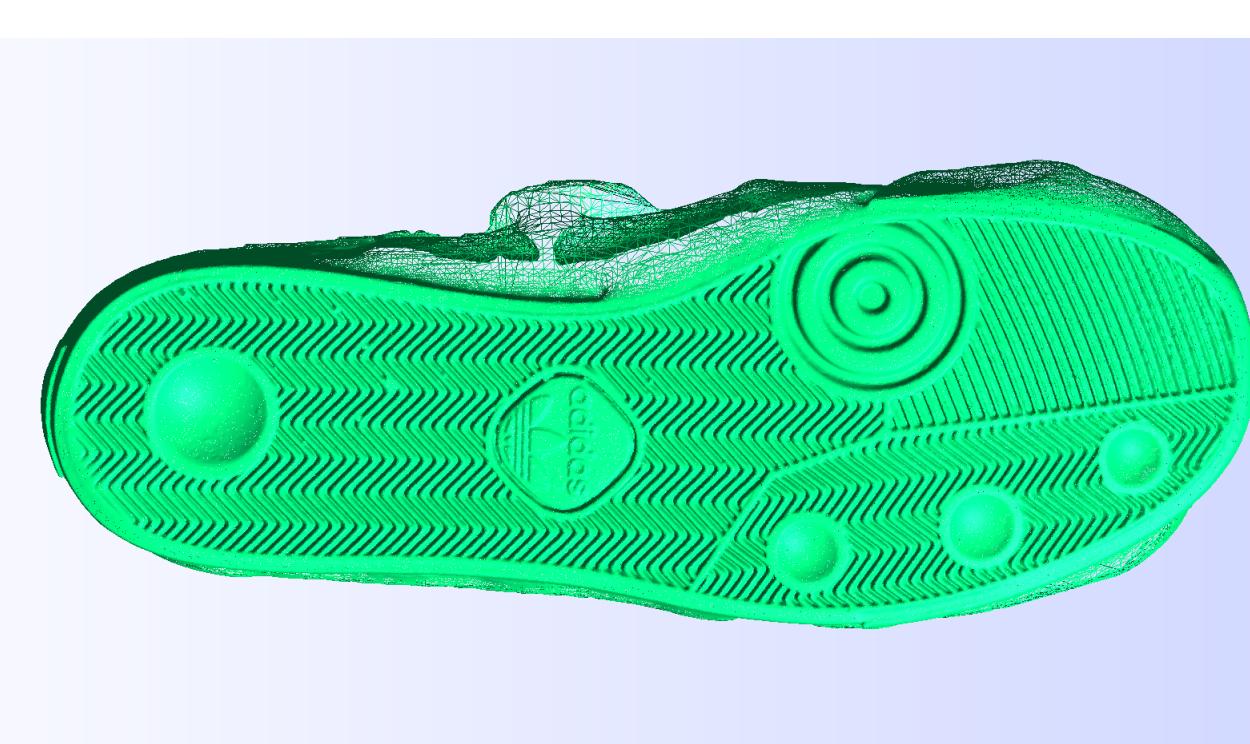


Fig. 2: Rendered 3D Scan

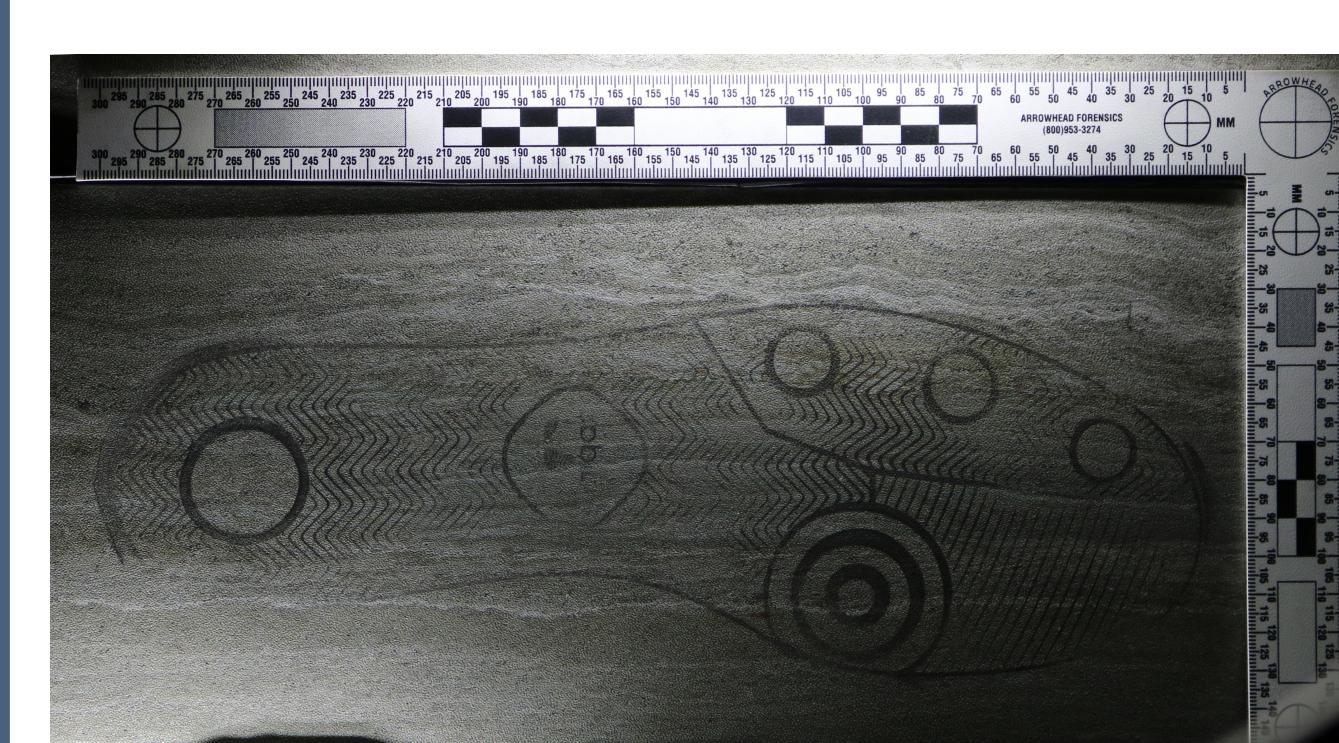


Fig. 3: Crime Scene Print



Fig. 4: Digital Camera

Access the Database

<https://data.csafe.iastate.edu/DataPortal/>

Database Features

Metadata about the images, shoes, and participants is included in the downloaded zip file.

Fig. 5: 6 searchable fields, including design, individual shoe ID, foot, capture method, and number of steps.

Fig. 6: Download only the images you need.

Save query	Load query
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Fig. 7: Export queries for later.

Goals

The goal of this database is to enable comparisons of wear and individual characteristics, as measured by several different collection methods.

- Compare data acquisition methods
- Examine individual wear patterns
- Explore evolution of acquired defects over time
- Compare wear/defect frequency between shoe models

Build A Query

1. Add new conditions using the + sign
2. Select the join operation to use (AND/OR)
OR joins linked AND queries
3. Select the filter variable
4. Select the desired value
5. Submit (Initiate Query)
6. Select images for download (right pane)

Fig. 8: Query Build Interface

Nike Winflo - Film Prints



Adidas Seeley - 2D Digital Scan

