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Supervised learning approach for estimating human height from footprint measurements

Stature estimation plays a crucial role in forensic anthropology, particularly when identification has to rely on limited biological evidence such as footprints. Traditional regression approaches often struggle with accuracy, whereas machine learning (ML) methods can capture more complex relationships within biometric data, offering improved prediction. In this pilot study, we explored the use of supervised ML techniques—specifically Random Forest and Decision Tree models—for estimating stature from a dataset of 100 footprint samples. Foot length and breadth were considered as the main predictive features. The dataset was divided into training and testing sets, and model performance was evaluated using commonly applied error metrics. Among the methods tested, one algorithm demonstrated comparatively better outcomes, suggesting that ML-based approaches could be promising tools for forensic stature estimation.

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