Unlocking Online Shoe Fitting: Data-Driven Foot Measurements and Size Recommendation

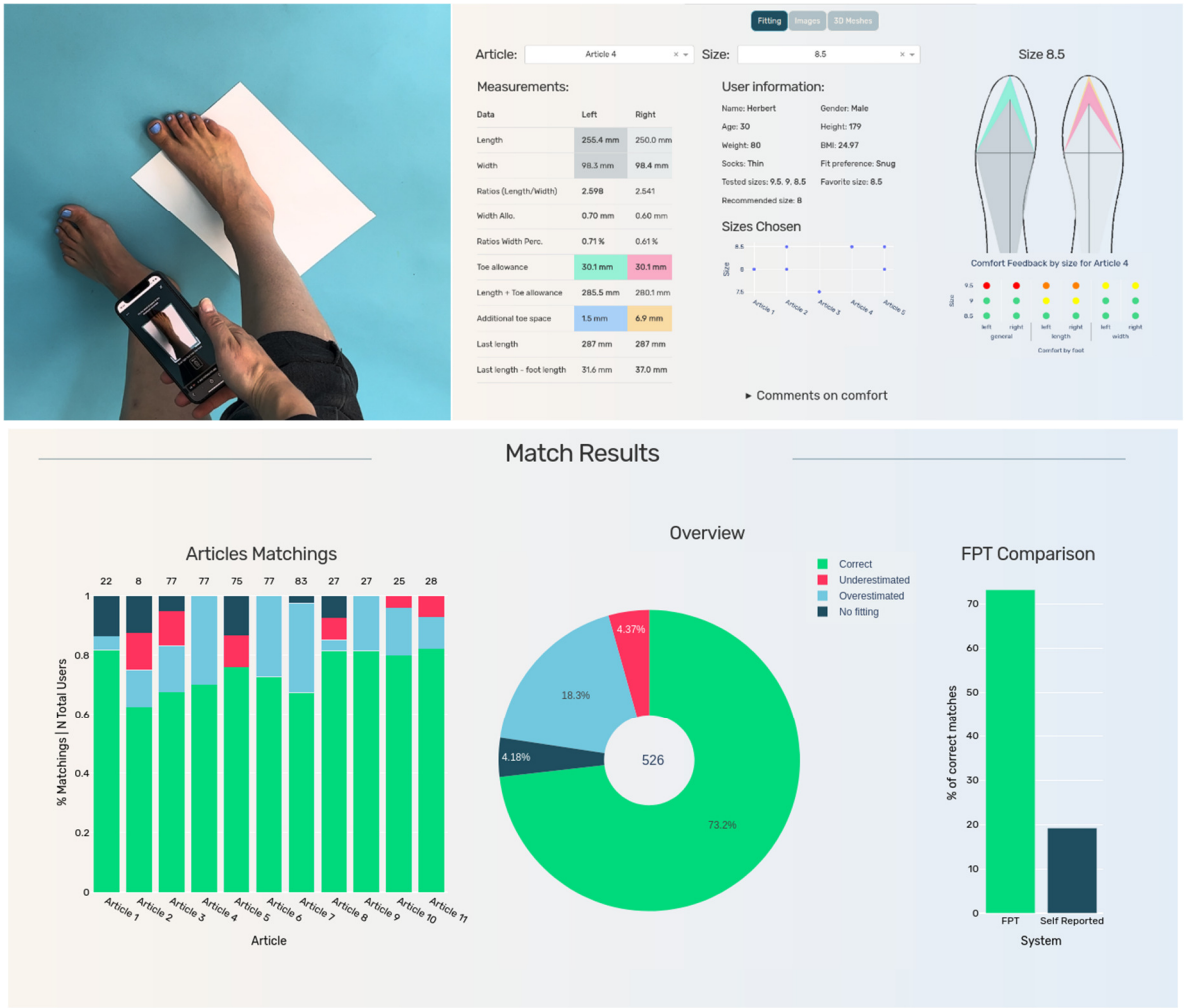
Andrés PRADA GONZÁLEZ
Footprint Technologies GmbH *, Berlin, Berlin

Abstract

Finding the correct shoe size remains a significant challenge. Having multiple sizing standards around the globe causes uncertainty in selecting the correct size. The inability to physically try on shoes further exacerbates this issue in online shopping. At Footprint Technologies, we enable online shoe fittings using our accurate and precise shoe size recommendation system. It relies on two key components: the foot measurement and matching algorithms. The first one determines the foot dimension based on images and, the second one predicts the best-fitting size for a particular shoe model by analyzing the user's foot measurements and additional data such as gender, age, height, and weight. Finding the ideal fitting parameters for each shoe model is complex, so we developed a try-on process to collect and analyze data to optimize these parameters.

This process involves two stages. First, we gather data by selecting 3 to 8 shoe models for testers to evaluate. Testers try shoes in different sizes and provide feedback on comfort and their size preference for the particular model.

Additionally, we collect 2D images via our web app and 3D foot meshes using a laser scanner. In the second stage, we post-process this data to analyze and identify the best parameters for achieving an optimal fit. By following these steps, we found the best fit for 131 users out of 138 Footprint users running on a client's webshop. However, this process has some limitations in scaling it to many different shoes and can incur biased analysis on a limited number of testers.



* https://footprinttech.de/