

July 20, 2020

Farshid Guilak, Ph.D

Editor-in-Chief

Journal of Biomechanics

Dear Dr. Guilak,

Attached please find our manuscript for consideration in publication in the Journal of Biomechanics as an Original Article, titled “Dynamic foot morphology explained through 4D scanning and shape modeling”.

This manuscript details how we used 4D scanning to create a statistical shape model to predict foot shape from subject anthropometrics and kinematics. The data was collected by an in-house 4D scanning system, and the resultant model was able to predict dynamic foot shape during stance phase loading with an accuracy of 5.2mm. We believe this work will be of high interest to the biomechanics field. Our model highlights how and where specific factors, such as foot length or ankle joint dorsi/plantarflexion, specifically change foot shape. Footwear fit and comfort is difficult to get right with variances in population foot shape, footwear sizes, and footwear molds. Our model can serve as a starting point for footwear designers to ensure footwear stays fitted and comfortable during foot loading in stance phase. Our model will also be of great interest to those outside the footwear community looking for information on why foot shape might change. The methods detailed in the manuscript may also help those looking model morphological changes for other motions.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We have no conflicts of interest to disclose. The authors have contributed to the conception, data collection, data analysis, and drafting of the article, and have read and concur with the content of the manuscript.

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Sincerely,



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