

Reece D. Huff

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SUMMARY

I am a Mechanical Engineering Ph.D. student in the [Berkeley BioMechanics Laboratory](#). My interests lie in utilizing techniques such as deep learning, medical imaging, motion capture, and finite-element modeling to uncover mechanisms that lead to ailment in the musculoskeletal system.

EDUCATION

University of California, Berkeley

2021 - present Doctor of Philosophy (Ph.D.) in Mechanical Engineering
2021 - present Master's of Science (M.S.) in Mechanical Engineering (GPA: 4.00/4.00)
Major: Biomechanics, Minor #1: Machine Learning, Minor #2: Computer Science

Boston University

2018 - 2021 Bachelor of Science (B.S.) in Biomedical Engineering (GPA: 3.99/4.00)

WORK EXPERIENCE

Graduate Research Assistant

September 2021 - present

[Berkeley BioMechanics Laboratory](#), **PI: Grace O'Connell**

Berkeley, CA

– **Awards:** NSF GRFP, Graduate Division Block Grant.

Undergraduate Research Assistant

March 2019 - August 2021

[Orthopaedic Biomechanics Laboratory](#), **PI: Elise Morgan**

Boston, MA

– **Awards:** Barry M. Goldwater Scholarship, Distinguished Summer Research Fellowship, Undergraduate Research Opportunities Program Awardee (four semesters).

PROJECTS

Machine learning for *in vivo* strain prediction

[\[Project Page\]](#)

Comparing intervertebral disc geometry measurement methods

[\[Paper\]](#)[\[Project Page\]](#)

Finite-element modeling of lumbar disc herniation

[\[Paper\]](#)[\[Project Page\]](#)

Optimizing digital volume correlation to study vertebral fractures

[\[Project Page\]](#)

PUBLICATIONS

Lim S., **Huff R.D.**, Veres J.E., Satish D., O'Connell G.D. (2022). "Disc geometry measurement methods affect reported compressive mechanics by up to 65%." *JOR Spine*, e1214.

Zhou M., **Huff R.D.**, Yousuf A., O'Connell G.D. (2021) "Torque- and Muscle-Driven Flexion Induce Disparate Risk of In Vitro Herniation: A Multiscale and Multiphasic Structure-Based Finite Element Study." *Journal of Biomedical Engineering*, 144(6).

SKILLS

Programming

Python (expertise in PyTorch, NumPy, Matplotlib, pandas), MATLAB, Mathematica, Bash scripting, C++ (limited), Fortran (limited)

Computational

Deep learning, image processing, motion capture, finite-element modeling.

General

Adobe Creative Cloud, Microsoft Office, Google Suite.