# Huizhou Yang

## Personal Information

**E-mail:** Huizhou.yang@du.edu **Tel:** 720-212-1500

## Education background

**01/2016-11/2021** **University of Denver (DU), Denver** **GPA: 3.88**

Doctor of Philosophy in Mechanical Engineering

**09/2013-06/2015** **University of Denver (DU), Denver** **GPA: 3.75**

Master of Science in Mechanical Engineering

## Work Experience

### Research Assistant

*Center for Orthopaedic Biomechanics, University of Denver* Sept. 2016 – Nov. 2021

### Postdoctoral Researcher

*Center for Orthopaedic Biomechanics, University of Denver* Dec. 2021 - Present

## Research Experience

### Application of finite element analysis in orthopaedics

*Center for Orthopaedic Biomechanics, University of Denver*

Faculty advisor: Paul Rullkoetter Jan. 2016 – Present

- Develop and validate computational models for experiment devices, implants, specimens, and human tissues
- Simulate post-operative lower limb activities and study the influence of implants on joint related parameters
- Test implant designs and prototypes under physiological conditions and give suggestions for improvement
- Answer surgeons' concerns by testing potential surgical plans and technique concepts

### Implant stability after knee arthroplasty

*Center for Orthopaedic Biomechanics, University of Denver*

Faculty advisor: Paul Rullkoetter Dec. 2018 – Present

- Develop experimental-computational frameworks for evaluating TKA/UKA implant stability
- Develop UKA models that include bones, implants, cartilages, and soft-tissues for evaluating implant designs
- Investigate the impact of TKA factors on bone remodeling and cementless implant-bone micromotion
- Compare the implant stability between novel cementless TKA/UKA designs

### Implant stability after hip arthroplasty

*Center for Orthopaedic Biomechanics, University of Denver*

Faculty advisor: Paul Rullkoetter, Chadd Clary Dec. 2022 – Present

- Develop experimental-computational frameworks for evaluating hip implant stability
- Compare the implant stability and bone strain energy density between novel designs

### Thermal Elastic Instabilities in Automotive System

*Department of Mechanical Engineering, University of Denver*

Faculty Advisor: Yunbo Yi Aug. 2014 – Aug. 2015

- Researched in Thermal problems in automotive systems
- Applied simulation software to research TI problems

## Research Publications

**Yang H**, Bayoglu R, SharifiRavani M, Behnam Y, Navacchia A, Clary CW, Rullkoetter PJ. 2020. *Validation and sensitivity of model- predicted proximal tibial displacement and tray micromotion in cementless total knee arthroplasty under physiological conditions*. J. Mech. Behav. Biomed. Mater. 109:103793.

**Yang H**, Bayoglu R, Clary CW, Rullkoetter PJ. 2021. *Impact of surgical alignment, tray material, PCL condition, and patient anatomy on tibial strains after TKA.* Med. Eng. Phys. 88:69–77.

**Yang H**, Bayoglu R, Clary CW, Rullkoetter PJ. 2022. *Impact of patient, surgical, and implant design factors on predicted tray-bone inferface micromotions in cementless total knee arthroplasty.* J. Orthop. Res. 1-15.

**Yang H**, Behnam Y, Clary CW, Rullkoetter PJ. 2022. *Drivers of initial stability in cementless TKA: Isolating effects of tibiofemoral conformity and fixation features.* J. Mech. Behav. Biomed. Mater. 136:105507

Zhao J, Chen Z, **Yang H**, Yi Y. 2016. *Finite element analysis of thermal buckling in automotive clutch plates*. Journal of Thermal Stresses. 39: 77-89.

## Conference Presentations

**Yang H**, Bayoglu R, SharifiRavani M, Behnam Y, Navacchia A, Clary CW, Rullkoetter PJ. *Validation of model-predicted proximal tibial displacement and tray micromotion in cementless TKA*. 32nd International Society for Technology in Arthroplasty, Toronto, October 2019.

**Yang H**, Bayoglu R, Clary CW, Rullkoetter PJ. *Impact of surgical alignment, tray material, PCL condition, and patient anatomy on proximal tibial strains after cemented TKA*. 32nd International Society for Technology in Arthroplasty, Toronto, October 2019.

Han X, **Yang H**, Clary CW, Rullkoetter PJ. *Validation of model-predicted cementless patella displacements during lunge*. 32nd International Society for Technology in Arthroplasty, Toronto, October 2019.

**Yang H**, Bayoglu R, Clary CW, Rullkoetter PJ. *Impact of alignment variation and activity on tray-bone interface micromotion in cementless TKA*. Orthopaedic Research Society, Phoenix, February 2020.

**Yang H**, Behnam Y, Clary CW, Rullkoetter PJ. *Drivers of initial stability in cementless TKA: Isolating effects of tibiofemoral articulation and fixation features from current implants*. 33rd International Society for Technology in Arthroplasty, Maui, September 2022.

Han X, **Yang H**, Navacchia A, Clary CW, Rullkoetter PJ. *Evaluating the initial stability in cementless patellar implant during a single-leg lunge*. 33rd International Society for Technology in Arthroplasty, Maui, September 2022.

**Yang H**, Marras D, Clary CW, Rullkoetter PJ. *Impact of implant alignment, bone material, and implant design factors on the primary fixation stability in cementless unicompartmental knee replacement*. 33rd International Society for Technology in Arthroplasty, Orthopaedic Research Society, Dallas, February 2023.

## Skills and Abilities

ABAQUS, Hypermesh, ScanIP, Python, Matlab, Solidwork, Inkspace, OriginPro, finite element modeling, finite element analysis, statistical analysis