

Post-Doctoral Fellow
University of California Davis Medical Center

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Posted Jun. 6, 2024, set to expire Oct. 6, 2024

Job Title	Post-Doctoral Fellow
Department	Orthopaedic Surgery
Institution	University of California Davis Medical Center Sacramento, California
Date Posted	Jun. 6, 2024
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Post-Doc
Academic Field(s)	Robotics Mechatronics Mechanical Engineering Bioengineering (all Bio-related fields)
Apply By Email	mlhull@ucdavis.edu
Job Description	

Postdoctoral Fellowship in Orthopaedic Biomechanics, University of California Davis Medical Center

Post-Doctoral Fellow

Orthopaedic Research Laboratory
Department of Orthopaedic Surgery
University of California Davis Medical Center
Sacramento, CA

The Orthopaedic Research Laboratory at the University of California Davis Medical Center in Sacramento, CA (<https://health.ucdavis.edu/orthopaedics/research/hull-lab.html>) has an opening for a qualified applicant to receive the Medacta Post-Doctoral Fellowship in Total Knee Arthroplasty (TKA).

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This fellowship provides funding for the fellow's stipend and benefits plus additional funds for research expenditures.

As background to the position, the conventional method for aligning components in TKA is mechanical alignment (MA), which is used in approximately 1 million patients in the US annually. However, 20% of patients have unsatisfactory clinical outcomes. To improve outcomes, our research group pioneered an alternative method for aligning components termed kinematic alignment (KA). After performing the surgery on more than 6000 patients, clinical outcomes with KA are better than MA. Based on objective measures of knee function before and after KA, one broad research goal is to provide knowledge which leads to implant designs optimized for KA so that knee function is restored to healthy. A related goal is to develop computational and experimental methods for accurately determining biomechanical variables that characterize knee function. A second broad goal is to improve the surgical techniques to accurately achieve desired component alignment in KA.

The successful candidate will have completed their PhD in areas that can translate to biomechanics of the knee. Research experience and **strong technical mechanical and electrical skills are required including experience in programming in Labview, operating robotic systems including motion control, mechanical design and metal fabrication, instrumentation design and fabrication particularly as related to measurement of force and/or pressure, 3D kinematics using motion tracking systems, and performing statistical analyses.**

Our laboratory houses a custom robotic universal load application system (LAS) for testing cadaveric knees. The candidate will develop this system to operational status and undertake new projects related to KA which include both the tibiofemoral joint and the patellofemoral joint. Undertaking these projects will require developing new experimental methods and testing protocols to measure dependent variables characterizing joint function. Such variables include 3D passive (i.e. laxities) and active (i.e. muscle force applied) motions of the tibiofemoral joint, tibial contact forces/pressures, tibial contact kinematics, 3D kinematics of the patellofemoral joint (i.e. patellar tracking) and patellar contact loads/pressures.

This successful candidate should work and communicate well with orthopaedic surgeons. It is also important to possess excellent organizational, writing, and verbal communication skills for grant and manuscript submissions. The fellowship is funded up to 3 years.

To apply, please submit: (1) a letter of interest, including qualifications for this fellowship, and (2) a current curriculum vitae including the names of three professional references by email to mlhull@ucdavis.edu

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Applications will be accepted until the position is filled. Please send any questions by email.

Maury L. Hull, PhD
Distinguished Professor Emeritus
Department of Orthopaedic Surgery
Department of Mechanical Engineering
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mlhull@ucdavis.edu

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Maury L. Hull
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