

Postdoctoral Scholar
University of California Davis Medical Center

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Posted Mar. 3, 2024, set to expire Jul. 3, 2024

Job Title	Postdoctoral Scholar
Department	Biomedical Engineering
Institution	University of California Davis Medical Center Sacramento, California
Date Posted	Mar. 3, 2024
Application Deadline	Open until filled
Position Start Date	April 15, 2024
Job Categories	Post-Doc
Academic Field(s)	Bioengineering (all Bio-related fields) Mechanical Engineering
Job Website	https://health.ucdavis.edu/orthopaedics/research/hull-lab.html
Apply By Email	mlhull@ucdavis.edu
Job Description	

Postdoctoral Fellowship in Orthopaedic Biomechanics, University of California Davis

Post-Doctoral Fellow

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

The Orthopaedic Biomechanics Laboratory at the University of California Davis
(<https://health.ucdavis.edu/orthopaedics/research/hull-lab.html>)

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has an opening for a qualified applicant to receive the Medacta Post-Doctoral Fellowship in Total Knee Arthroplasty. 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 implants in TKA is mechanical alignment (MA), which is used in upwards of 1 million patients in the US annually. However, 20% of patients have unsatisfactory clinical outcomes. To improve outcomes, about 15 years ago our research group conceived an alternative method for aligning implants termed kinematic alignment (KA) and pioneered novel surgical techniques for achieving the desired alignment. After performing the surgery on more than 6000 patients, clinical outcomes following 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 the desired component alignment in KA. This is a unique opportunity to become involved in cutting-edge and impactful research which promises to change the clinical practice paradigm to the benefit of millions of patients worldwide.

The position involves conducting a clinical study on at least 35 patients undergoing KA TKA to determine stability of new cementless tibial and femoral implants. Using radiostereometric analysis (RSA), stability is quantified by determining micromotions (termed migrations) of each implant in six degrees of freedom over a 2-year follow up. A related aspect is the development of experimental and/or computational methods which minimize registration errors. In addition to this clinical study, which is primary, the fellow can be involved in other studies to enrich the educational experience and strengthen his/her record of productivity.

The successful candidate must have excellent command of the English language to recruit and interact with patients; organizational skills to schedule the five follow-up visits for each patient, maintain a database of patient demographics, administer patient-reported outcome questionnaires, and compute scores; computational skills to perform image registration and determine micromotions; and experimental and computational skills to develop methods to minimize registration error. This successful candidate should work and communicate well with orthopaedic surgeons. It is also important to possess strong written and verbal communication skills for manuscript submissions and conference presentations. The fellowship is funded for up to 3 years.

To apply, please submit: (1) a letter of interest, including qualifications for this fellowship, (2) a one-page statement of research interests, and (3) a current curriculum vitae including the names of three

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professional references by email to mlhull@ucdavis.edu

The position can start as early as April 15, 2024 but applications will be accepted until the position is filled. Only applicants who are US citizens, who have a green card, or who can get a visa before June 1, 2024 should apply. Please send any questions by email.

Maury L. Hull, PhD
Distinguished Professor Emeritus
Department of Biomedical Engineering
Department of Mechanical Engineering

Department of Orthopaedic Surgery
University of California Davis

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Contact Information

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

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