

**इंडियन इंस्टीट्यूट ऑफ टेक्नोलॉजी दिल्ली**  
**हौज खास, नई दिल्ली -110016**  
**(औद्योगिक अनुसंधान एवं विकास इकाई)**  
**INDIAN INSTITUTE OF TECHNOLOGY DELHI**  
Hauz Khas, New Delhi-110016  
(Industrial Research & Development Unit)

No. IITD/IRDRP03981G/

3056 28

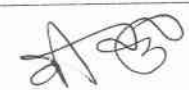
Advertisement No.: IITD/IRD/050/2021

Dated: 01/03/2021

Applications from Indian nationals are invited for Project Appointment under the following project. Appointment shall be on contractual basis with consolidated pay, renewable yearly or upto the duration of the project, whichever is earlier. निम्नलिखित परियोजना के तहत भारतीय नागरिकों से आवेदन आमंत्रित किए जाते हैं। अपॉइंटमेंट, अनुबंधित आधार पर समेकित वेतन, नवीकरणीय वार्षिक या परियोजना की अवधि तक, जो भी पहले हो, के साथ होगा।

Brief description of the project: Computer-aided guidance inside the operation theatre is an augmentation to eliminate human error. This project plans to develop a virtual reality training platform that will incorporate a computational head model with anatomical details and realistic material properties, to study the real-time deformation of the brain during interventional neurosurgery inside the operation theatre. The objectives of the project are as follow: • In-vivo characterization of human brain tissue using non-invasive techniques such as magnetic resonance elastography. • In-vitro mechanical characterization of human brain tissue. • Development of virtual reality training platform for the image-guided neuronavigational surgeries. The project will explore brain mechanics and its subsequent application in prototype building in neurosurgical simulation and instrumentation, thereby leading to improvement in patient outcome and survival.

Title of the Project		Material characterization of brain tissue and development of tissue-device interaction based neurosurgical simulation tool (RP03981G)
Funding Agency		Indian Council for Medical Research (ICMR)
Name of the Project Investigator		Prof. Sitikantha Roy [email of PI: <a href="mailto:jatcexosuit@gmail.com">jatcexosuit@gmail.com</a> ]
Deptt/ Centre		Department of Applied Mechanics
Duration of the Project		Upto:30/09/2023
Post (s)	Consolidated fellowship / Pay-slab	Qualifications
Research Associate-III (1)	Rs.54,000/-p.m. plus HRA @ 24%	Ph.D./MD/MDS or equivalent degree in the area of Mechanical Engineering/Physics/Biomedical Engineering/Radiology/Biomedical Signal and Image Processing/Medical Imaging/Applied Computational Mechanics / Computer Science Engineering/Mathematics with first-class (60%) or equivalent at all the preceding degrees and certificates along with good publication record in Science Citation Indexed (SCI) Journal. OR 1 <sup>st</sup> class ME/MS/MTech in Mechanical/Biomedical/Radiology/Applied Mechanics having three years of research, teaching and algorithm development experience in Biomechanics related field with at least one good publication in Science Citation Indexed (SCI) Journal. <b>Essential:</b> Prior knowledge of Magnetic Resonance Image (MRI) Processing and Physics of MRI quantitative analysis is a must for shortlisting. Desirable skills: Candidate with hands-on knowledge of algorithm development using Python, C++ or MATLAB. Prior experience in Magnetic Resonance Elastography, neuro radiology, Computational Mechanics will be a plus.
Research Associate-III (1)	Rs.54,000/-p.m. plus HRA @ 24%	Ph.D./MD/MDS or equivalent degree in the area of Mechanical Engineering/Biomedical Engineering/ Applied Mechanics/ Instrumentation Engineering with first class (60%) or equivalent at all the preceding degrees and certificates along with good publication record in Science Citation Indexed (SCI) Journal. OR 1 <sup>st</sup> class ME/MS/MTech in Mechanical/Biomedical/ Aerospace/Applied Mechanics having three years of research, teaching and soft tissue mechanical characterization experience along with at least one good publication in Science Citation Indexed (SCI) Journal. <b>Essential:</b> 1. Person having a background in experimental mechanical characterization of soft tissue/soft material, and hands-on experience on nanoindenter, micro-CT, UTM etc. Knowledge of MATLAB or any other quantitative data analysis tool. 2. Desire to work in biomechanics area. Desirable skills: Candidate with prior knowledge of Optical Microscopy, Dynamic mechanical analysis, Responsibilities: Mechanical characterization of brain tissue and polymeric material, experimental data analysis, biological sample preparation, experimental design.
Principal Project Scientist (01)	Rs.56,000-60,000-64,000-69,000-74,000-79,000/- p.m. (consolidated)	Ph.D./MD/MDS or equivalent degree in Mechanical Engineering/ Physics/Biomedical Engineering/ Applied Mechanics/ Design 56,000 - 60,000 - 64,000 - 69,000 - 74,000 - 79,000 Engineering/Computer Graphics/Virtual & Mixed Reality with a good publication record in SCI Journals. OR 1 <sup>st</sup> class ME/MS/MTech in Mechanical/Biomedical/Aerospace/Applied Mechanics having six years of research, teaching and algorithm development experience in computer graphics or virtual reality related field along with at least one good publication in Science Citation Indexed (SCI) Journal. <b>Essential:</b> Person having a background in Computer graphics, Computational algorithm development, Virtual reality platform development, Artificial Intelligence, and Machine Learning. Desirable skills: Candidate with hands-on experience in computer graphics and computational algorithm development.



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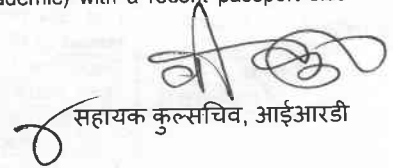
The post(s) may be downgraded as per discretion of the Selection Committee if none of the candidate is found suitable for the post.

The candidates who are interested to apply for the above post should download Form No. IRD/REC-4 from the IRD Website (<http://ird.iitd.ac.in/rec>) of IIT Delhi and submit the duly filled form with complete information regarding educational qualifications indicating percentage of marks/division, details of work experience etc. by e-mail with advertisement No. on the subject line to Prof. Sitikantha Roy at email id: [jatcexosuit@gmail.com](mailto:jatcexosuit@gmail.com)

IIT Delhi reserves the right to fix higher criteria for short-listing of eligible candidates from those satisfying advertised qualification and requirement of the project post and their name will be displayed on web link (<http://ird.iitd.ac.in/shortlisted>) along with the online interview details. Only short-listed candidates will be informed for online interview. In case any clarification is required on eligibility regarding the above post, the candidate may contact Prof. Sitikantha Roy at email id: [jatcexosuit@gmail.com](mailto:jatcexosuit@gmail.com)

5% relaxation of marks may be granted to the SC/ST Candidates. In case of selection of a retired/superannuated government employee, his/her salary will be fixed as per prevailing IRD norms. अनुसूचित जाति / अनुसूचित जनजाति के उम्मीदवारों को अंकों की 5% छूट दी जा सकती है. एक सेवानिवृत्त सरकारी कर्मचारी के चयन के मामले में उसका वेतन वर्तमान आईआरडी मानदंडों के अनुसार तय किया जाएगा।

The last date for submitting the completed applications by e-mail is 14/03/2021 by 5.00 p.m. The shortlisted candidates who are called for interview should bring original certificates (both professional and academic) with a recent passport size photograph at the time of interview.

  
सहायक कुल्सचिव, आईआरडी

#### वितरण

- Head of the Deptt./Centres/Units :
- Webmaster, IRD :
- Notice Boards
- Advertisement file
- Prof. Sitikantha Roy, PI, Department of Applied Mechanics
- Copy to Chairperson, DRC/CRC
- Dr. Harshita Bhatnagar, RD Coordinator, (R&D) Wing

It is requested that the contents of the Above Advt. be brought to the notice of the staff working in your Deptt./Centre/Unit To put advertisement at IITD website.