

PhD Student in Programmable Soft Robotics Texas Tech University

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Posted Sep. 12, 2024, set to expire Jan. 12, 2025

Job Title	PhD Student in Programmable Soft Robotics
Department	Mechanical Engineering https://www.depts.ttu.edu/me/
Institution	Texas Tech University Lubbock, Texas
Date Posted	Sep. 12, 2024
Application Deadline	Dec. 31, 2025
Position Start Date	Available Immediately
Job Categories	Graduate Student
Academic Field(s)	Robotics Mechatronics Mechanical Engineering Bioengineering (all Bio-related fields)
Job Website	http://myweb.ttu.edu/xiaolonl/
Apply By Email	
Job Description	

About the Position: The [Computational Robotics and Mechatronics \(CRM\) Laboratory](#) at Texas Tech University is seeking applicants interested in pursuing a PhD in Programmable Soft Robotics. The CRM Lab's research focuses on three core areas: (1) the design, actuation, and locomotion control of miniature untethered soft robots, (2) the development of soft robotic systems for minimally invasive surgery and intervention, and (3) patient-specific cardiovascular and neurovascular surgical planning and implant design optimization using physics-informed machine learning techniques. This opening aligns with the first research thrust.

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About the Principal Investigator: Dr. Xiaolong Liu is an Assistant Professor of Mechanical Engineering at Texas Tech University, with his PhD obtained in Biomedical Engineering from the University of Tennessee, Knoxville. He previously worked at the Johns Hopkins University as a Research Scientist in the Department of Mechanical Engineering and Laboratory of Computational Sensing and Robotics (directed by Prof. Russell Taylor). Dr. Liu has served as a Principal Investigator on a research project funded by Maryland Technology Development Corporation (TEDCO), and a Co-Investigator on several research projects funded by organizations such as National Science Foundation (NSF), National Institute of Health (NIH), American Heart Association (AHA), and has published 40+ peer-reviewed papers in IEEE, ASME, and BMES journals and conferences. His research has received recognition such as the Maryland Innovation Initiative Award and Best Paper Runner-up Award in Robotics, etc. Dr. Liu has served on NSF panels, program committees, editorial boards of multiple IEEE conferences in robotics and automation.

About Texas Tech: Texas Tech University is a top-ranked public research institution in Texas known for its excellence in research, STEM programs, and student success. Faculty in the Department of Mechanical Engineering are known for cited work on bio-inspired devices, computational mechanics, vortex dynamics, turbulence, microfluidics, nanoimprinting, physiological microstructure and translational nutrition, cardiovascular dynamics, nanomedicine, energetic and biological materials, and robust control methods. Department faculty recognitions and awards include membership in the US National Academy of Engineering and foreign Academies of Engineering and the Sciences, recognitions as Thomson-Reuters highly cited scholars, Young Investigator DOD awards, and NSF CAREER awards. The university offers access to advanced technologies and resources such as 3D printing and prototyping capabilities, high-performance computing systems, and specialized laboratories. The CRM lab is equipped with state-of-the-art medical robotic systems, surgical tracking systems, imaging sensors, and control devices that enable innovative solutions for complex medical problems. Additionally, Texas Tech University Health Sciences Center, located adjacent to the main campus, is home to highly respected medical professionals and offers state-of-the-art facilities for medical research, including a simulation center for surgical training and a biomedical research facility that houses advanced imaging and visualization tools.

Required Qualifications and Skills:

- We require applicants to have an BS and MS degree in Mechanical Engineering with in-depth knowledge of continuum mechanics. Outstanding students with a BS degree may also be considered.
- It is desirable that the candidate has experience with at least one of the following finite element modeling software: COMSOL, FEBio, or FEniCS.

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- Strong programming skills in languages such as C++, Python, or MATLAB are highly desirable.
- Candidates must have a demonstrated commitment to publishing and presenting research findings. Publication records in peer-reviewed journals or conferences are highly valued.
- We seek individuals with a strong passion for research and the ability to work both independently and as part of a team.
- Strong writing and verbal communication skills are necessary.
- We value candidates who are respectful and committed to building an inclusive and welcoming environment.

Benefits:

- Fully covered tuition and competitive stipend
- Supportive and collaborative research environment
- The PI has established extensive collaborative partnerships with research institutions, such as Johns Hopkins University, the University of Chicago Medicine, and Children's National Hospital at Washington DC. Students at the CRM lab will have opportunities to work with these institutions.

Application:

To apply, please reach out to Dr. Xiaolong Liu at xiaolong.liu@ttu.edu

Please send (1) your current CV, (2) your transcripts, (3) TOEFL score (GRE is waived), and (4) a cover letter describing your motivation for this application, potential research areas, and how your experience and interests make you a great fit for this position. Please use "Application for PhD Position" as the email subject.

Contact Information

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

Contact