



Xiujuan Fan

Ph.D. Candidate
Department of Bioengineering



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School of Engineering

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Research Thrusts: Soft and self-powered magnetoelastic bioelectronics; implantable and wearable sensing systems for cardiovascular and physiological monitoring; smart biomaterials and biointegrated devices for personalized healthcare; translational biomedical engineering from device development and mechanistic studies to *in vivo* validation.

EDUCATION HISTORY

University of California, Los Angeles	2024-Present
Ph.D. Student in Bioengineering; Graduate Student Researcher, Jun Chen Lab	
Shanghai Jiao Tong University	2020-2023
M.S. in Material Science and Engineering	
Donghua University	2016-2020
B.S. in Textile Science and Engineering	

AWARDS & HONOR

Amazon Award	2026
UCLA Bioengineering Department Fellowship	2024
Excellent Master's Thesis, Shanghai Jiao Tong University	2023
Shanghai Municipal Scholarship, Shanghai Jiao Tong University	2019

PEER-REVIEWED PUBLICATIONS

1. **Fan, X.**, Luo, Y., Chen, S., Duan, Z., Chen, J., Soft magnetoelastic bioelectronics. *Nature Reviews Bioengineering*. (accepted, 2026).
2. **Fan, X.**, Zheng, X., An, T., Li, X., Leung, N., Zhu, B., Sui, T., Shi, N., Fan, T. and Zhao, Q., **2023**. Light diffraction by sarcomeres produces iridescence in transmission in the transparent ghost catfish. *Proceedings of the National Academy of Sciences*, **120**(12), e2219300120.
3. **Fan, X.**, Chen, S., Chen, G., Duan, Z., Chen, J., 2026. Lab-on-a-disc biosensing platform for folate level quantification: Microfluidic sensing. *Nature Biomedical Engineering*, 1-2.
4. Fan, X., Chen, G., DiRisio, A., Li, Y-R., Xu, Y., Trivedi, H., Zia, S., Li, S., Colby, G. P., Chen, J., 2026. intelligent magnetoelastic embolics for self-powered aneurysm monitoring. *Nature Biomedical Engineering* (in press, 2026).
5. **Fan, X.**, Chen, G., Ren, Y., Xu, Y., Wang, S., Linsley, C., Duan, Z., Chen, S., Kim, I., Zhou, Y., Wang, Z., Zhang, J., Chen, J., Personalized and autonomous depression management via a magnetoelastic smart bedsheet system. *Nature Electronics* (in press, 2026)
6. **Fan, X.**, Chen, G., Aladham, R., Tian, J., DeFelice, L., Li, Y., Lin, J., Duan, Z., Liu, Z., Xu, Y., Chen, S., Zhao, X., Zhou, Y., Yan, Y., Li, S., Ajijola, O., Chen, J., Biocompatible and bioadhesive living sensory array for whole-heart myocardial strain mapping. *Nature Biotechnology*. (in press, 2026)
7. **Fan, X.**, Shen, S., Scott, K., Chen, G., Zhou, Y., Kim, S., Kim, I., Lin, N., Chen, J., **2026**. Generating electricity while walking with smart magnetoelastic insoles. *ACS Nano*, **20**(21), 15061.
8. **Fan, X.**, Tat, T., Chen, G., Shen, S., Zhou, Y., Zhao, X., Yin, J., Chen, J., Self-powered magnetoelastic tents for sustainable energy access in unhoused communities. *Matter*, 102954.
9. **Fan, X.**, Chen, S., Manshaili, F., Duan, Z., Chen, G., Zhao, X., Zhou, Y. and Chen, J., **2026**. Advances in Soft Mechanocaloric Materials. *Advanced Functional Materials*, **36**(6), 2420997.

10. Xu, S., **Fan, X.**^{*}, Chen, S., Baik, J.M. and Chen, J., 2026. Advances in Soft Solid State Electrocaloric Refrigeration. *Advanced Functional Materials*, **36**(6), e06625.
11. Xu, S., **Fan, X.**^{*}, Chen, S., Manshahi, F., Yin, J. and Chen, J., **2024**. Advances in luminescent fibers for interactive smart textiles. *Cmat*, **1**(3), e33.
12. Xu, X., Guo, R., **Fan, X.**, Duan, Z., Chen, J., **2026**. Clarifying the landscape of mechanical sensors from stress to strain. *Nature Sensors*, **1**, 576-590.
13. Chen, S., Zhao, X., Song, Y., **Fan, X.**, et al. Soft magnetoelastic microneedle patch for rapid skin cancer screening. *Nature Sensors*. In Press (2026)
14. Chen, S., **Fan, X.**, Duan, Z., Luo, Y. and Chen, J., **2025**. A magnetically programmable mesoporous nanoreactor: Magnetic nanomaterials. *Nature Nanotechnology*, **20**(7), 861-862.
15. Chen, S., Xu, S., **Fan, X.**, Xiao, X., Duan, Z., Zhao, X., Chen, G., Zhou, Y. and Chen, J., **2025**. Advances in 2D materials for wearable biomonitoring. *Materials Science and Engineering: R: Reports*, **164**, 100971.
16. Chen, S., Manshahi, F., **Fan, X.**, Duan, Z., Zhao, X., Zhou, Y. and Chen, J., **2024**. Creating breathable wearable bioelectronics using three-dimensional liquid diodes. *Matter*, **7**(8), 2632-2635.

* Co-first author.

RESEARCH EXPERIENCE

UCLA | Jun Chen Lab

- Developing flexible and implantable bioelectronics for continuous physiological monitoring, disease surveillance, and personalized healthcare.
- Leading the development of smart arteriovenous grafts for early detection of stenosis, thrombosis, and dialysis access dysfunction using soft magnetoelastic sensing.
- Designing machine learning pipelines for biomedical waveform analysis, anomaly detection, and risk prediction.
- Contributing to smart vascular and cardiac bioelectronic systems validated in translational preclinical models.
- Participating in rat and porcine studies involving angiography, PET/CT, ultrasound, and *in vivo* device validation.

Shanghai Jiao Tong University | Qibin Zhao Lab

- Conducted interdisciplinary research in biomaterials and biomechanics for tissue engineering applications.
- Developed regenerative materials for mechanically active tissues with emphasis on biocompatibility.

TECHNICAL SKILLS

Artificial Intelligence & Computational Technologies

- Python, MATLAB, machine learning, deep learning, biomedical signal processing, time-series analysis, anomaly detection, predictive modeling, COMSOL, data visualization

Experimental & Translational Technologies

- Soft materials fabrication, flexible electronics, implantable sensors, mechanical/electrical characterization, preclinical animal models, multimodal imaging workflows
- Adobe Illustrator, BioRender, publication-quality figures, presentations, technical writing