

# Resume

## Xuhui Hu, Ph.D.

Postdoctoral Research Scholar

Suzhou Institute of Biomedical Engineering and Technology

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## Honors and Awards

IEEE Member *2019-Present*

China Instrument Society Member *2022-Present*

1st Place in ARM Discipline at CYBATHLON CHALLENGE 2023 *Mar.2023*

Funded by the Postdoctoral Excellence Program in Jiangsu Province, China *May.2023*

Funded by the Youth Project of National Natural Science Foundation, China *April.2023*

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## Professional Experience

Postdoctoral Research Scholar - **Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, Suzhou, China**

*Jan.2023-Present*

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## Education

- Ph.D. in Instrument Science and Technology - **Southeast University, Nanjing, China** *Sep.2016 - Dec.2022*

Dissertation: Research on the Key Technology for Human-Machine Integrated Dextrous Myoelectric Prosthesis

Advisor: Prof. Aiguo Song (Chief Professor of Southeast University, Director of the Department of Electrical Instrumentation and Control)

- B.S. in Electrical Engineering and Automation - **Changshu Institute of Technology, Suzhou, China** *Sep.2012 - Dec.2016*
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# Publications

## **Research Articles as 1st Author:**

1. **X. Hu**, A. Song, H. Zeng, Z. Wei, H. Deng and D. Chen, "Bridging Human-Robot Co-Adaptation via Biofeedback for Continuous Myoelectric Control," in IEEE Robotics and Automation Letters, vol. 8, no. 12, pp. 8573-8580, Dec. 2023.
2. **X. Hu**, A. Song, J. Wang, H. Zeng, and W. Wei, "Finger Movement Recognition via High-Density Electromyography of Intrinsic and Extrinsic Hand Muscles," Scientific Data, vol. 9, no. 1, p. 373, Jun. 29, 2022.
3. **X. Hu**, A. Song, Z. Wei, and H. Zeng, "StereoPilot: A wearable target location system for blind and visually impaired using spatial audio rendering," IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol. 30, no. 9, pp. 1621-1630, Sep. 2022.
4. **X. Hu**, A. Song, H. Zeng, and D. Chen, "Intuitive environmental perception assistance for blind amputees using spatial audio rendering," IEEE Transactions on Medical Robotics and Bionics, vol. 4, no. 1, pp. 274-284, Mar. 2022.
5. **X. Hu**, H. Zeng, A. Song, and D. Chen, "Robust continuous hand motion recognition using wearable array myoelectric sensor," IEEE Sensors Journal, vol. 21, no. 18, pp. 20596-20605, Sep. 2021.
6. **X. Hu**, H. Zeng, D. Chen, J. Zhu, and A. Song, "Real-time continuous hand motion myoelectric decoding by automated data labeling," in 2020 IEEE International Conference on Robotics and Automation (ICRA), 2020: IEEE, pp. 6951-6957.

## **Other Research Articles:**

1. Tong Y, Zhang Y, Bao B, **X. Hu**, Li J, Wu H, Yang K, Zhang S, Yang H, Guo K. Multifunctional Biosensing Platform Based on Nickel-Modified Laser-Induced Graphene. *Bioengineering*. 2023; 10(5):620.
2. M. Orban, K. Guo, H. Yang, **X. Hu**, M. Hassaan, and M. Elsamanty, "Soft pneumatic muscles for post-stroke lower limb ankle rehabilitation: leveraging the potential of soft robotics to optimize functional outcomes," Frontiers in Bioengineering and Biotechnology, vol. 11, 2023.

3. H. Zeng et al., "Extended Control with Hybrid Gaze-BCI for Multi-Robot System under Hands-occupied Dual-tasking," IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol. 31, no. 3, pp. 241-250, Mar. 2023.
4. D. Chen et al., "Comparative Experimental Research on Haptic Display Methods of Virtual Surface Shape Based on Touch Screen," IEEE Transactions on Haptics, vol. 15, no. 4, pp. 667-678, Oct.-Dec. 2022.
5. H. Zeng, W. Yu, D. Chen, **X. Hu**, D. Zhang, and A. Song, "Exploring Biomimetic Stiffness Modulation and Wearable Finger Haptics for Improving Myoelectric Control of Virtual Hand," IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol. 30, no. 8, pp. 1601-1611, Aug. 2022.
6. W. Wei, **X. Hu**, H. Liu, M. Zhou, and Y. Song, "Towards integration of domain knowledge-guided feature engineering and deep feature learning in surface electromyography-based hand movement recognition," Computational Intelligence and Neuroscience, vol. 2021, Article ID 3783953, 2021.
7. D. Chen, J. Liu, L. Tian, **X. Hu**, and A. Song, "Research on the method of displaying the contour features of image to the visually impaired on the touch screen," IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol. 29, no. 11, pp. 2260-2270, Nov. 2021.
8. H. Zeng et al., "Semi-autonomous robotic arm reaching with hybrid gaze–brain machine interface," Frontiers in neurorobotics, vol. 13, p. 111, Jun. 2020.
9. D. Chen, A. Song, **X. Hu**, L. Fu, and Q. Ouyang, "A spherical actuator-based hand-held haptic device for touch screen interaction," IEEE Access, vol. 7, pp. 15125-15139, 2019.

#### **Conferences:**

1. Z. Wei, A. Song, and **X. Hu**, "Object localization assistive system based on CV and vibrotactile encoding," in 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2022: IEEE, pp. 2882-2885.
2. Q. Liu et al., "A Rigid and Flexible Structures Coupled Underactuated Hand," in 2022 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), 2022: IEEE, pp. 1587-1592.

#### **Patents:**

1. A. Song, **X. Hu**, H. Zeng, X. Baoguo, and H. Li, "Multi-dimensional surface electromyogram signal prosthetic hand control method based on principal component analysis," ed: US Patent 10,959,863, 2021.
  2. A. Song, **X. Hu**, W. Zhikai, H. Li, X. Baoguo, and H. Zeng, "Multi-degree-of-freedom myoelectric artificial hand control system and method for using same," ed: US Patent App. 17/628,753, 2022.
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