

# Wei Gao

## Contact Information

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## Professional Experience

07/2024 – Professor of Medical Engineering  
Division of Engineering and Applied Science  
California Institute of Technology (Caltech) Pasadena, CA, USA

05/2024 – Co-founder and advisor, Persperity Health

08/2017 – 06/2024 Assistant Professor of Medical Engineering  
Division of Engineering and Applied Science, Caltech

01/2021 – Investigator, Heritage Medical Research Institute, Caltech

10/2021 – Ronald and JoAnne Willens Scholar, Caltech

## Education

07/2014 – 06/2017 Postdoctoral Fellow in Electrical Engineering & Computer Sciences  
University of California, Berkeley Berkeley, CA, USA  
Advisor: Professor Ali Javey

09/2009 – 06/2014 Ph.D. in Chemical Engineering  
University of California, San Diego La Jolla, CA, USA  
Advisor: Professor Joseph Wang

09/2007 – 07/2009 M.S. in Precision Instrument  
Tsinghua University Beijing, China

09/2003 – 07/2007 B.S. in Mechanical Engineering  
Huazhong University of Science & Technology Wuhan, Hubei, China

## Research Interests

Wearable Devices, Biosensors, Bioelectronics, Point-of-care diagnostics, Flexible Electronics, Analytical Chemistry, Electrochemistry, Micro/Nanorobotics, Nanomotors, Nanomaterials, Nanomedicine.

## Awards & Honors

2024 Blavatnik National Awards for Young Scientists Finalist

2023 Watson Lecture, Caltech

2023 Highly Cited Researcher 2023 (Web of Science)

2023 Winner of Falling Walls Breakthrough of the Year 2023 in Engineering and Technology

2023 Advanced Materials Rising Star

2022 Materials Today Rising Star Award

2022 Highly Cited Researcher 2022 (Web of Science)

2022 US National Academy of Medicine Catalyst Award

2022 IAMBE Early Career Award

2022 NSF Career Award

2022 Pittcon Achievement Award

2022 American Cancer Society Research Scholar

2022 Journal of Nanobiotechnology Rising Star Award

2021 Highly Cited Researcher 2021 (Web of Science)

2021 USFOE, National Academy of Engineering

2021 ONR Young Investigator Award

2021 3M Non-Tenured Faculty Award

2021 Alfred P. Sloan Research Fellowship

2021 Associate Editor of *Science Advances*  
 2020 Highly Cited Researcher 2020 (Web of Science)  
 2020 IEEE Senior Member  
 2020 Young Scientist Award by Microsystems & Nanoengineering  
 2020 IEEE EMBS Early Career Achievement Award  
 2020 Chemical Society Reviews Emerging Investigator  
 2020 World Economic Forum Young Scientist (Class of 2020)  
 2020 Inaugural ACS Nano Rising Star Lecture  
 2019 Amgen Chem-Bio-Engineering Award  
 2019 AHA Transformational Project Award  
 2019 IEEE Sensors Council Technical Achievement Award (Early Career)  
 2019 Member of Global Young Academy (Class of 2019)  
 2018 Interstellar Initiative by the New York Academy of Sciences  
 2018 Sensors Young Investigator Award  
 2017 ACS Nano Junior Fellow  
 2016 R&D 100 Award, Finalist  
 2016 MIT Technology Review Top 35 Innovators Under 35 (Global List)  
 2015 ACS DIC Young Investigator Award  
 2014 MRS Graduate Student Award  
 2013 AIChE Bionanotechnology Graduate Student Award (1st place)  
 2013 Distinguished Young Scholars Summer Seminar, University of Washington  
 2013 MRS Graduate Student Award  
 2013 Chinese Government Award for Outstanding Students Abroad  
 2012 HHMI International Student Research Fellowship  
 2009 Jacobs Fellowship, University of California, San Diego

### Professional Activities and Academic Service

- Option Representative, Medical Engineering Graduate Program, Caltech, 10/2024 – Present
- Associate Editor of *Science Advances* (one of the five sister journals for *Science Magazine*).
- Associate Editor of *Biosensors and Bioelectronics* (Elsevier).
- Associate Editor of *npj Flexible Electronics* (Nature Research Journal).
- Associate Editor of *Sensors & Diagnostics* (RSC).
- Associate Editor of *IEEE Journal on Flexible Electronics* (IEEE).
- Member of Editorial or Advisory Board of 18 Journals including: *Science Advances* (AAAS), *Matter* (Cell Press), *Microsystems & Nanoengineering* (Nature Research Journal), *Scientific Reports* (Nature Research Journal), *Materials Today* (Elsevier), *Biosensors and Bioelectronics* (Elsevier), *Biosensors and Bioelectronics: X* (Elsevier), *Biomedical Technology* (Elsevier), *Opto-Electronic Advances*, *Med-X* (Springer Nature), *Microchimica Acta* (Springer Nature), *Intelligent Sensing* (Springer Nature), *Advanced Intelligent Systems* (Wiley), *Exploration* (Wiley), *Analysis & Sensing* (Wiley), *FlexTech* (Wiley), *the Innovation Materials*, *Micromachines* (MDPI), and *Sensors* (MDPI).
- Member of AAAS, ACS, AHA, BMES, ECS, GYA, IEEE, ISE, MRS, and RSC.
- Invited Guest Editor for *Talanta* (Elsevier), Special Issue on Wearable Sensors, 2020.
- Invited Guest Editor for *Journal of Semiconductors*, Special Issue on Flexible Materials and Structures, 2020.
- Invited Guest Editor for *iScience* (Cell Press), Special Issue on Wearable Electronics, 2021.
- Invited Guest Editor for *Advanced Healthcare Materials*, Special Issue on Wearable/Implantable Devices, 2021.
- Invited Guest Editor for *Biosensors and Bioelectronics* (Elsevier), Special Issue on Wearable Biosensors, 2022.
- Invited Guest Editor for *Applied Physical Reviews* (AIP), Special Issue on Flexible and Smart Electronics, 2023.
- Invited Guest Editor for *Analysis & Sensing* (Wiley), Special Issue on Wearable Biosensors, 2023.
- Invited Guest Editor for *Sensors & Diagnostics* (RSC), Themed Collection on Emerging Investigators, 2023.
- Invited Guest Editor for *Communication Materials* (Nature), Special Issue on Wearable Biosensors, 2023
- Invited Guest Editor for *Biosensors and Bioelectronics*, Special issue on Young Scientists in the Americas, 2024.
- Conference/symposium organizer: IEEE NEMS 2020 (Wearable Multifunctional Micro/Nanosystems); 2021 IEEE Metronind 4.0 & IoT (Wearable Sensor Special Session); IEEE FLEPS 2021 (Bio- and Wearable Electronics); 2021 1<sup>st</sup> Workshop of Next Generation of Sensors (Springer Nature); ACS-Western Regional Meeting (WRM-2022) 'Chemical Sensors' Symposium; IEEE FLEPS 2022 (Bio- and Chemical Sensors); IEEE EMBC 2022 (Biomedical Sensors and Wearable Systems), 7th Bioengineering and Translational Medicine Conference

(AICHE); International Conference on Manipulation, Automation and Robotics at Small Scales (MARSS) 2023; IEEE FLEPS 2023; IEEE Biosensors 2023; IEEE EMBC 2023; 2024 SPIE Soft Mechatronics and Wearable Systems Conference; Pittcon 2024 (Wearable/implantable sensors); ACS Fall 2024 (Symposium for ACS Award in Analytical Chemistry); IEEE Biosensors 2024; International Conference on Biomedical Engineering (ICBME) 2024; SPIE Soft Mechatronics & Wearable Systems 2025; 247th ECS Meeting 2025 (Biosensors).

- Member of IEEE EDS (Electron Devices Society) Ad Hoc Committee on Intelligent Devices.
- Panelist for NSF (ECCS, Biosensing), DOD (CDMRP), NASA (HERO), NIH (ISD), NIH Special Emphasized Panels.
- Proposal Reviewer for NIH, NSF, ARO, AFOSR, CDMRP, NASA, NIST, ERC, Ontario Research Fund, A\*STAR, AAAS, CFI, HK RGC, etc.
- Independent Reviewer of over 100 International Journals, including:  
*Nature, Science, Nature Biotechnology, Nature Biomedical Engineering, Nature Chemical Engineering, Nature Electronics, Nature Food, Nature Machine Intelligence, Nature Materials, Nature Methods, Nature Nanotechnology, Nature Protocols, Nature Reviews Materials, Nature Reviews Neurology, Nature Communications, Science Robotics, Science Translational Medicine, Science Advances, Proceedings of the National Academy of Sciences, Chem, Cell Biomaterials, Device, Joule, Matter, Neuron, Light: Science & Applications, Journal of the American Chemical Society, Angewandte Chemie, Chemical Reviews, Accounts of Chemical Research, Nano Letters, ACS Nano, Advanced Materials, Advanced Functional Materials, Advanced Energy Materials, Advanced Healthcare Materials, Advanced Optical Materials, Advanced Materials Interfaces, Advanced Science, Advanced Biosystems, Advanced Intelligent System, Advanced Sensor Research, MRS Bulletin, Trends in Chemistry, Research, Progress in Materials Science, Trends in Analytical Chemistry, Microsystems & Nanoengineering, Energy & Environmental Science, Nano Today, Nano Energy, Nano Research, Small, Small Methods, Chemistry - A European Journal, Chemistry – An Asian Journal, npj Digital Medicine, npj Flexible Electronics, Communication Materials, PLOS One, Scientific Reports, iScience, Heliyon, Analytical Chemistry, ACS Applied Materials & Interfaces, ACS Materials Letters, ACS Sensors, Langmuir, ACS Biomaterials Science & Engineering, Chemical Science, ChemSusChem, ChemCatChem, ChemElectroChem, The Chemical Record, Chemical Communications, Nanoscale, Journal of Materials Chemistry A, B, C, Lab on a Chip, Soft Matter, Analyst, Sensors & Diagnostics, RSC Advances, Physical Chemistry Chemical Physics, New Journal of Chemistry, Advanced Drug Delivery Reviews, Nano-Micro Letters, Biosensors and Bioelectronics, Electrochimica Acta, Sensors and Actuators B: Chemical, Talanta, Electroanalysis, ChemistrySelect, International Journal of Pharmaceutics, Materials Science & Engineering C, Materials Science & Engineering - R: Reports, Journal of Physics and Chemistry of Solids, Applied Physics Letters, Journal of Applied Physics, AIP Advances, Materials Today, Applied Materials Today, Microchimica Acta, Microchemical Journal, Sensors, Annals of Biomedical Engineering, IEEE Sensors, IEEE Sensors Letters, IEEE Transactions on Electron Devices, IEEE Transactions on NanoBioscience, Journal of Fluids and Structures, IEEE Transactions on Biomedical Engineering, IEEE Journal of Translational Engineering in Health & Medicine, The Journal of The Electrochemical Society, ECS Journal of Solid State Science and Technology, Review of Scientific Instruments, etc.*

## Teaching

MedE 201a. Principles and Design of Medical Devices. Taught in Winter 2018-2022.

MedE 201b. Principles and Design of Medical Devices. Taught in Spring 2018-2020.

MedE 201. Principles and Design of Medical Devices. Taught in Winter 2024.

MedE 202. Sensors in Medicine. Taught in Winter 2019-2024.

MedE 100 abc. Medical Engineering Seminar. From Fall 2017 to Spring 2024.

## Graduates and postdocs supervised

Current PhD students (17): Jiahong Li, Wenzheng Heng, Samuel Solomon, Canran Wang, José Lasalde Ramírez, Hong Han, Dickson (Richard) Yao, Soyoungh Shin, Xiaotian Ma, Shukun Yin, Ruixiao Liu, Peng Jin, Joshua Chaj Ulloa, Yerim Lee, Kexin Fan, Yonglin Chen, Ruihao Song.

Current postdoc scholars (17): Minqiang Wang, Elham Davoodi, Cui Ye, Yongsuk Choi, Inho Kim, Jounghyun Yoo, Songsong Tang, Jeonghee Yeom, Gwangmook Kim, Yadong Xu, Moon-Ju Kim, Sukyoung Won, Jihong Min, Jiaobing Tu, Wenjian Li, Sijie Ji, Shadman Khan.

Past PhD students: Yiran Yang, Jiaobing Tu, Jihong Min, Changhao Xu, Daniel Mukasa, Heather Lukas.

Past postdocs: Rebeca M. Torrente-Rodriguez, Joanna Nassar, Zhiguang Wu, Emil Karshalev, You Yu, Roland Tay, Ben Sadri, Ehsan Shirzaei Sani, Ben Sadri, Sung-Hyuk Sunwoo, Juliane R. Sempionatto, Yu Song.

## Research Grants

Serving as the Principal Investigator (PI) for projects (>16 million USD to the Gao Group) funded by National Institutes of Health (NIH), the Advanced Research Projects Agency for Health (ARPA-H), National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), Translational Research Institute for Space Health (TRISH), Office of Naval Research (ONR), Army Research Office (ARO), US Army Medical Research and Development Command (USAMRDC), Alfred P. Sloan Foundation, American Cancer Society (ACS), American Heart Association (AHA), US National Academy of Medicine, Amgen, Meta, 3M, Honda, University of California Office of the President (UCOP), Tobacco-Related Disease Research Program (TRDRP), Caltech Rothenberg Innovation Initiative (RI<sup>2</sup>), Rosen Bioengineering Center, Caltech-COH Initiative, Merkin Institute for Translational Research, Chen Institute for Neuroscience, and Information Science and Technology (IST) initiative for developing and evaluating the wearable biosensors and synthetic micro/nanorobots in research, clinical, and real life settings.

**Publications (>140 papers, >35,000 citations, h-index 90, Google Scholar - 09/2024).** \*Corresponding author

1. W. Heng, S. Yin, J. Min, C. Wang, H. Han, E. Shirzaei Sani, J. Li, Y. Song, H. B. Rossiter, W. Gao\*, A smart mask for exhaled breath condensate harvesting and analysis, *Science*, 2024, 385, 954-961.  
*Highlighted in "Every breath you take, this mask will be watching your health", Science, Aug 2024.*  
*Highlighted Caltech News, National Institutes of Health, MIT Technology Review, Forbes, The Guardian, Fox News, Chemical & Engineering News, and more.*
2. W. Heng, D. R. Yao, W. Gao\*, Miniaturized soft batteries for biomedical implants, *Nature Chemical Engineering*, 2024, *in press*.
3. T. Wang, B. Teng, D. R. Yao, W. Gao, Y. Oka, Organ-specific sympathetic innervation defines visceral functions, *Nature*, *in press*.
4. S. Ji, X. Zheng, J. Sun, R. Chen, W. Gao, M. Srivastava, MindGuard: Towards accessible and sigma-free mental health first aid via edge LLM, arXiv:2409.10064, 2024.
5. N. Brasier, J. Wang, W. Gao, J. R. Sempionatto, C. Dincer, H. Ceren Ates, F. Güder, S. Olenik, I. Schauwecker, D. Schaffarczyk, E. Vayena, N. Ritz, M. Weissner, S. Mtenga, R. Ghaffari, J. A. Rogers, J. Goldhahn, Applied body-fluid analysis by wearable devices, *Nature*, 2024, *in press*.
6. G. Kim, H. Ahn, J. Chaj Ulloa, W. Gao\*, Microneedle sensors for dermal interstitial fluid analysis, *Med-X*, 2024, 2, 15.
7. A. Childs, B. Mayol, J. A. Lasalde-Ramírez, Y. Song, J. R. Sempionatto, W. Gao\*, Diving into sweat: Advances, challenges, and future directions in wearable sweat sensing, *ACS Nano*, 2024, 18, 24605-24616.
8. C. Ye, H. Lukas, M. Wang, Y. Lee, W. Gao\*, Nucleic acid-based wearable and implantable electrochemical sensors, *Chemical Society Reviews*, 2024, 53, 7960-7982.
9. C. Wang, E. Shirzaei Sani, C.-D. Shih, C. T. Lim, J. Wang, David G. Armstrong, W. Gao\*, Wound management materials and technologies from bench to bedside and beyond, *Nature Reviews Materials*, 2024, 9, 550-566.
10. S. Tang, D. Tang, H. Zhou, Y. Li, D. Zhou, X. Peng, C. Ren, Y. Su, S. Zhang, H. Zheng, F. Wan, J. Yoo, H. Han, X. Ma, W. Gao\*, S. Wu, Bacterial outer membrane vesicle nanorobot, *Proceedings of the National Academy of Sciences*, 2024, 121, e2403460121.
11. J. Li, Y. Xu, W. Gao\*, Injectable and retrievable soft electronics. *Nature Materials*, 2024, 23, 591-593.
12. Y. Xu, Z. Ye, G. Zhao, Q. Fei, Z. Chen, J. Li, M. Yang, Y. Ren, B. Berigan, Y. Ling, X. Qian, L. Shi, I. Ozden, J. Xie, W. Gao\*, P.-Y. Chen, Z. Yan, Phase-separated porous nanocomposite with ultralow percolation threshold for wireless bioelectronics. *Nature Nanotechnology*, 2024, 19, 1158-1167.  
*Featured in Research Briefing, "Strain-resilient porous conductors with fewer nanofillers from in situ phase separation", Nature Nanotechnology, 2024, 19, 1089-1090.*
13. N. Brasier, J. R. Sempionatto, S. Bourke, G. Havenith, D. Schaffarczyk, J. Goldhahn, C. Lüscher, W. Gao, Toward on-skin analyses of sweat for managing disorders of substance abuse, *Nature Biomedical Engineering*, 2024, 8, 925-929.
14. D. R. Yao, I. Kim, S. Yin, W. Gao\*, Multimodal soft robotic actuation and locomotion, *Advanced Materials*, 2024, 36, 2308829.
15. C. Xu, Y. Song, J. R. Sempionatto, S. A. Solomon, Y. Yu, H. Y. Y. Nyein, R. Y. Tay, J. Li, A. Lao, T. K. Hsiai, J. A. Sumner, W. Gao\*, A physicochemical sensing electronic skin for stress response monitoring, *Nature Electronics*, 2024, 7, 168-179.  
*Highlighted in Caltech News.*  
*Highlighted in "Stress monitoring with wearable technology and AI", Nature Electronics, 2024, 7, 98-99.*
16. W. Reis de Araujo, H. Lukas, M. D. T. Torres, W. Gao, C. de la Fuente-Nunez, Low-Cost Biosensor Technologies for Rapid Detection of COVID-19 and Future Pandemics, *ACS Nano*, 2024, 18, 1757-1777.

17. C. Ye, M. Wang, J. Min, R. Y. Tay, H. Lukas, J. R. Sempionatto, J. Li, C. Xu, W. Gao\*, A wearable aptamer nanobiosensor for non-invasive female hormone monitoring, *Nature Nanotechnology*, 2024, 19, 330–337.  
*Highlighted in Caltech News.*  
*Highlighted in "Wearable biosensor measures fertility hormones in sweat", Nature, Nov 2023.*  
*Highlighted in "Wireless real-time monitoring of oestradiol in sweat", Nature Nanotechnology, 2024, 19, 217.*
18. C. Xu, S. A. Solomon, W. Gao\*, Artificial intelligence-powered electronic skin, *Nature Machine Intelligence*, 2023, 5, 1344–1355.
19. R. Y. Tay, Y. Song, D. Yao, W. Gao\*, Direct-ink-writing 3D-printed bioelectronics, *Materials Today*, 2023, 71, 135–151. *Materials Today Rising Star Award Contribution.*
20. Y. Song, R. Y. Tay, J. Li, C. Xu, J. Min, E. Shirzaei Sani, G. Kim, W. Heng, I. Kim, W. Gao\*, 3D-printed epifluidic electronic skin for machine learning-powered multimodal health surveillance, *Science Advances*, 2023, 9, eadi6492.  
*Highlighted in IEEE Spectrum.*
21. J. Min, S. Demchyshyn, J. R. Sempionatto, Y. Song, B. Hailegnaw, C. Xu, Y. Yang, S. Solomon, C. Putz, L. Lehner, J. F. Schwarz, C. Schwarzinger, M. Scharber, M. Kaltenbrunner, W. Gao\*, An autonomous wearable biosensor powered by a perovskite solar cell, *Nature Electronics*, 2023, 6, 630–641.  
*Featured on Journal Cover.*  
*Highlighted in Caltech News.*  
*Highlighted in Continuous sweat monitoring on the go, Nature Electronics, 2023, 6, 557–558.*
22. B. Sadri, W. Gao\*, Fibrous wearable and implantable bioelectronics, *Applied Physics Reviews*, 2023, 10, 031303.
23. Y. Choi, D. H. Ho, S. Kim, Y. J. Choi, D. G. Roe, I. Kwak, J. Min, H. Han, W. Gao\*, J. H. Cho, Physically defined long-term and short-term synapses for the development of reconfigurable analog-type operators capable of performing healthcare tasks, *Science Advances*, 2023, 9, eadg5946.
24. J. Tu, J. Min, Y. Song, C. Xu, J. Li, J. Moore, J. Hanson, E. Hu, T. Parimon, T.-Y. Wang, E. Davoodi, T.-F. Chou, P. Chen, J. J. Hsu, H. B. Rossiter, W. Gao\*, A wireless patch for the monitoring of C-reactive protein in sweat, *Nature Biomedical Engineering*, 2023, 7, 1293–1306.  
*Highlighted in Caltech News.*
25. X. Peng, S. Tang, D. Tang, D. Zhou, Y. Li, Q. Chen, F. Wan, H. Lukas, H. Han, X. Zhang, W. Gao\*, S. Wu, Autonomous metal–organic framework nanorobots for active mitochondria-targeted cancer therapy, *Science Advances*, 2023, 9, eadh1736.
26. N. Brasier, H. Ceren Ates, J. R. Sempionatto, M. O. Cotta, A. F. Widmer, J. Eckstein, J. Goldhahn, J. A. Roberts, W. Gao\*, C. Dincer, A three-level model for therapeutic drug monitoring of antimicrobials at the site of infection, *The Lancet Infectious Diseases*, 2023, 23, e445–e453.
27. Y. Li, Z. Cong, L. Xie, S. Tang, C. Ren, X. Peng, D. Tang, F. Wan, H. Han, X. Zhang, W. Gao\*, S. Wu. Magnetically Powered Immunogenic Macrophage Microrobots for Targeted Multimodal Cancer Therapy, *Small*, 2023, 19, 2301489.
28. D. Mukasa, M. Wang, J. Min, Y. Yang, S. A. Solomon, H. Han, C. Ye, W. Gao\*, A Computationally Assisted Approach for Designing Wearable Biosensors toward Non-invasive Personalized Molecular Analysis, *Advanced Materials*, 2023, 35, 2212161.  
*Featured in Advanced Materials Rising Star series.*  
*Featured on Journal Cover.*
29. J. Min, J. Tu, C. Xu, H. Lukas, S. Shin, Y. Yang, S. A. Solomon, D. Mukasa, W. Gao\*, Skin-Interfaced Wearable Sweat Sensors for Precision Medicine, *Chemical Reviews*, 2023, 123, 5049–5138.  
*Featured on Journal Cover.*
30. E. Shirzaei Sani, C. Xu, C. Wang, Y. Song, J. Min, J. Tu, S. A. Solomon, J. Li, J. L. Banks, D. G. Armstrong, W. Gao\*, A stretchable wireless wearable bioelectronic system for multiplexed monitoring and combination treatment of infected chronic wounds, *Science Advances*, 2023, 9, eadf7388.  
*Highlighted in Caltech News, Scientific American, The Guardian, New Scientist, Voice of America, UPI, Physics Today (Batter Scatter of May 2023 Issue), CEP (AICHE), etc.*
31. Y. Luo et al. Technology Roadmap for Flexible Sensors, *ACS Nano*, 2023, 17, 5211–5295.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications).*
32. J. Yoo, S. Tang, W. Gao\*, Micro- and nanorobots for biomedical applications in the brain, *Nature Reviews Bioengineering*, 2023, 1, 308–310.
33. J. R. Sempionatto, J. Lasalde Ramírez, K. Mahato, J. Wang, W. Gao\*, Wearable Chemical Sensors for Biomarker Discovery in the Omics Era, *Nature Reviews Chemistry*, 2022, 6, 899–915.
34. J. Min, Y. Song, W. Gao\*, Microcracked conductor for wearable sensors. *Nature Electronics*, 2022, 5, 717–718.

35. M. Wang, Y. Yang, J. Min, Y. Song, J. Tu, D. Mukasa, C. Ye, C. Xu, N. Heflin, J. S. McCune, T. K. Hsiai, Z. Li, W. Gao\*, A Wearable Electrochemical Biosensor for the Monitoring of Metabolites and Nutrients, *Nature Biomedical Engineering*, 2022, 6, 1225–1235.  
*Featured on Journal Cover.*  
*Highlighted in Caltech News, etc.*
36. Y. Yu, J. Li, S. A. Solomon, J. Min, J. Tu, W. Guo, C. Xu, Y. Song, W. Gao\*, All-printed Soft Human-Machine Interface for Robotic Physicochemical Sensing, *Science Robotics*, 2022, 7, eabn0495.  
*Featured on Journal Cover.*  
*Highlighted in Caltech News, Scientific American, Daily Beast, MSN, Yahoo, the Independent, etc.*
37. W. Heng, S. Solomon, W. Gao\*, Flexible Electronics and Devices as Human-Machine Interfaces for Medical Robotics, *Advanced Materials*, 2022, 34, 2107902.
38. C. Wang, E. Shirzaei Sani, W. Gao\*, Wearable Bioelectronics for Chronic Wound Management, *Advanced Functional Materials*, 2022, 32, 2270099.  
*Highlighted in Journal Cover.*
39. M. Wang, Y. Yang, W. Gao\*, Laser-Engraved Graphene for Flexible and Wearable Electronics, *Trends in Chemistry*, 2021, 3, 969-981.
40. E. Shirzaei Sani, C. Wang, W. Gao\*, A Soft Bioaffinity Sensor Array for Chronic Wound Monitoring, *Matter*, 2021, 4, 2613-2615.
41. Y. Chen, E. Demir, W. Gao\*, Y.-N. Young, O. S. Pak, Wall-Induced Translation of a Rotating Particle in a Shear-Thinning Fluid, *Journal of Fluid Mechanics*, 2021, 927, R2.
42. J. Tu, W. Gao\*, Ethical Considerations of Wearable Technologies in Human Research, *Advanced Healthcare Materials*, 2021, 10, 2100127.
43. Y. Song, D. Mukasa, H. Zhang, W. Gao\*, Self-Powered Wearable Biosensors, *Accounts of Materials Research*, 2021, 2, 184-197.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications).*
44. J. Min, J. R. Sempionatto, H. Teymourian, J. Wang, W. Gao\*, Wearable Electrochemical Biosensors in North America, *Biosensors and Bioelectronics*, 2021, 172, 112750.
45. A. Hashemi Talkhooncheh, Y. Yu, A. Agarwal, W. Kuo, K. C. Chen, M. Wang, G. Hoskuldsdottir, W. Gao\*, A. Emami, A Biofuel-Cell-Based Energy Harvester With 86% Peak Efficiency and 0.25-V Minimum Input Voltage Using Source-Adaptive MPPT, *IEEE Journal of Solid-State Circuits (JSSC)*, 2021, 56, 715-728.
46. J. Tu, W. Gao\*, Spray-on Magnetic Skin for Robotic Actuation, *Science Robotics*, 2020, 5, eabf1390.
47. H. Lukas, C. Xu, Y. Yu, W. Gao\*, Emerging Telemedicine Tools for Remote COVID-19 Diagnosis, Monitoring, and Management, *ACS Nano*, 2020, 14, 16180-16193.  
*Highlighted in Virtual Special Issue "Advances in COVID-19 Testing".*
48. R. M. Torrente-Rodríguez, H. Lukas, J. Tu, J. Min, Y. Yang, C. Xu, H. B. Rossiter, W. Gao\*, SARS-CoV-2 RapidPlex: A Graphene-based Multiplexed Telemedicine Platform for Rapid and Low-Cost COVID-19 Diagnosis and Monitoring, *Matter*, 2020, 3, 1981-1998.  
*Highlighted in Journal Cover.*  
*Previewed by Prof. Wei Tao at Harvard Medical School, Matter, 2020, 3, 1818-1820.*  
*Highlighted in Caltech News, BBC, CGTV, Fast Company, Forbes, MSN, The Engineer, and Optics.*
49. Y. Song, J. Min, Y. Yu, H. Wang, Y. Yang, H. Zhang, W. Gao\*, Wireless Battery-free Wearable Sweat Sensor Powered by Human Motion, *Science Advances*, 2020, 6, eaay9842.
50. Z. Wu, Y. Chen, D. Mukasa, O. S. Pak, W. Gao\*, Medical Micro/Nanorobots in Complex Media, *Chemical Society Reviews*, 2020, 49, 8088-8112.  
*Emerging Investigator Themed Issue.*
51. Y. Yu, J. Nassar, C. Xu, J. Min, Y. Yang, A. Dai, R. Doshi, A. Huang, Y. Song, R. Gehlhar, A. D. Ames, W. Gao\*, Biofuel-powered Soft Electronic Skin with Multiplexed and Wireless Sensing for Human-Machine Interfaces, *Science Robotics*, 2020, 5, eaaz7946.  
*Highlighted in Electronic skins sweat it out, Editor's Research Highlight, Nature Electronics, 2020, 3, 235.*  
*Highlighted in Caltech News, The Conversation, Yahoo News, The Engineer, CNET, Inside Science, and more.*
52. C. Xu, Y. Yang, W. Gao\*, Skin-interfaced Sensors in Digital Medicine: from Materials to Applications, *Matter*, 2020, 2, 1414-1445.
53. C. Xu, W. Gao\*, Motile Microelectronics with Wireless Power, *Nature Electronics*, 2020, 3, 139-140.
54. R. M. Torrente-Rodríguez, J. Tu, Y. Yang, J. Min, M. Wang, Y. Song, Y. Yu, C. Xu, C. Ye, W. W. IsHak, W. Gao\*, Investigation of Cortisol Dynamics in Human Sweat using a Graphene-based Wireless mHealth System, *Matter*, 2020, 2, 921-937.  
*Highlighted in Preview Article by Prof. John Rogers at Northwestern University, Matter, 2020, 2 795-797.*

- Highlighted in Caltech News, The Engineer, Xinhua, Science Daily, Yahoo News, and more.*
55. Y. Yang, Y. Song, X. Bo, J. Min, O. S. Pak, L. Zhu, M. Wang, J. Tu, A. Kogan, H. Zhang, T. K. Hsiai, Z. Li, W. Gao\*, A Laser-Engraved Wearable Sensor for Sensitive Detection of Uric Acid and Tyrosine in Sweat, *Nature Biotechnology*, 2020, 38, 217-224.  
*Highlighted as Editor's Choice by Science Translational Medicine.*
  56. J. Tu, R. M. Torrente-Rodríguez, M. Wang, W. Gao\*, The Era of Digital Health: A Review of Portable and Wearable Affinity Biosensors, *Advanced Functional Materials*, 2020, 30, 1906713.  
*Featured on the Journal Cover.*
  57. A. Hashemi Talkhooncheh, Y. Yu, A. Agarwal, W. Kuo, K. C. Chen, M. Wang, G. Hoskuldsdottir, W. Gao, A. Emami, A Fully-Integrated Biofuel-Cell-Based Energy Harvester with 86% Peak Efficiency and 0.25V Minimum Input Voltage Using Source-Adaptive MPPT, *IEEE Custom Integrated Circuits Conference (CICC)*, 2020.  
*Best Student Paper Award in CICC.*
  58. Y. Song, J. Min, W. Gao\*, Wearable and Implantable Electronics: Moving Toward Precision Therapy, *ACS Nano*, 2019, 13, 12280.
  59. J. Min, Y. Yang, Z. Wu, W. Gao\*, Robotics in the Gut, *Advanced Therapeutics*, 2020, 3, 1900125.
  60. Y. Yu, H. Y. Y. Nyein, W. Gao\*, A. Javey, Flexible Electrochemical Bioelectronics: The Rise of In Situ Bioanalysis, *Advanced Materials*, 2020, 32, 1902083.  
*Featured on Journal Frontispiece.*
  61. Z. Wu, L. Li, Y. Yang, P. Hu, Y. Li, S.-Y. Yang, L. V. Wang, W. Gao\*, A Microrobotic System Guided by Photoacoustic Computed Tomography for Targeted Navigation in Intestines *In Vivo*, *Science Robotics*, 2019, 4, eaax0613.  
*Highlighted in Caltech News, New Scientist, Optics & Photonics News, SPIE, MSN.*
  62. Y. Ji, X. Lin, Z. Wu, Y. Wu, W. Gao\*, Q. He, Macroscale Chemotaxis from a Swarm of Bacteria-Mimicking Nanoswimmers, *Angewandte Chemie International Edition*, 2019, 58, 12200-12205.  
*Selected as 'Hot Paper' by the editors.*
  63. Y. Yang, W. Gao\*, Wearable and Flexible Electronics for Continuous Molecular Monitoring, *Chemical Society Reviews*, 2019, 48, 1465-1491.  
*Featured on Journal Front Cover. Highlighted by Science Daily and Chemistry Views.*
  64. W. Gao\*, H. Ota, D. Kiriya, K. Takei, A. Javey, Flexible Electronics Toward Wearable Sensing, *Accounts of Chemical Research*, 2019, 52, 523-533.  
*Featured on Special Issue Cover.*
  65. K. Takei, W. Gao\*, C. Wang, A. Javey, Physical and Chemical Sensing with Electronic Skin, *Proceedings of the IEEE*, 2019, 107, 2155-2167.
  66. Y. Yang, W. Gao\*, Wearable pH sensing beyond the Nernst limit, *Nature Electronics*, 2018, 1, 580-581.
  67. Y. Zhong, X. Tang, J. Li, Q. Lan, L. Min, C. Ren, X. Hu, R. M. Torrente-Rodríguez, W. Gao\*, Z. Yang, Nanozyme Tags Enabled Chemiluminescence Imaging Immunoassay for Multiplexed Cytokine Monitoring, *Chemical Communications*, 2018, 54, 13813-13816.
  68. L.-C. Tai, W. Gao,<sup>§</sup> M. Chao, M. Bariya, Q. P. Ngo, Z. Shahpar, H. Y. Y. Nyein, H. Park, J. Sun, Y. Jung, E. Wu, H. M. Fahad, D.-H. Lien, H. Ota, G. Cho, and A. Javey, Methylxanthine drug monitoring with wearable sweat sensors, *Advanced Materials*, 2018, 1707442. [<sup>§</sup>] *Equal contribution.*
  69. W. Gao, G. A. Brooks, D. C. Klonoff, Wearable Physiological Systems and Technologies for Metabolic Monitoring, *Journal of Applied Physiology*, 2018, 124, 548-556.
  70. H. Wu, W. Gao\*, Z. Yin, Materials, Devices and Systems of Soft Bioelectronics for Precision Therapy, *Advanced Healthcare Materials*, 2017, 6, 1700017.  
*Highlighted in Advanced Science News, featured on Journal Cover.*
  71. S. Emaminejad,<sup>§</sup> W. Gao,<sup>§</sup> E. Wu, Z. Davies, H. Y. Y. Nyein, S. Challa, S. Ryan, H. M. Fahad, K. Chen, Z. Shahpar, S. Talebi, C. Milla, A. Javey, R. W. Davis, Autonomous Sweat Extraction and Analysis Applied to Cystic Fibrosis and Glucose Monitoring using a Fully Integrated Wearable Platform, *Proceedings of the National Academy of Sciences*, 2017, 114, 4624.  
*Highlighted in NBC News, Reuters and Daily Mail.*
  72. W. Gao, H. Y. Y. Nyein, Z. Shahpar, L.-C. Tai, E. Wu, M. Bariya, H. Ota, H. M. Fahad, K. Chen and A. Javey, Wearable Sweat Biosensors, *IEEE IEDM*, 2016, pp. 6.6.1-6.6.4.
  73. T. Xu,<sup>§</sup> W. Gao,<sup>§</sup> L.-P. Xu, S. Wang, X. Zhang, Fuel-Free Synthetic Micro/Nanomachines, *Advanced Materials* 2017, 29, 1603250.  
*Highlighted in Advanced Science News, featured on Journal Frontispiece.*

74. W. Gao,<sup>§</sup> S. Emaminejad,<sup>§</sup> H. Y. Y. Nyein, S. Challa, K. Chen, A. Peck, H. Fahad, H. Ota, S. Hiroshi, D. Kiriya, D. H. Lien, G. A. Brooks, R. W. Davis, A. Javey, Fully-Integrated Wearable Sensor Arrays for Multiplexed In-Situ Perspiration Analysis, *Nature*, 2016, 529, 509-514.  
*Selected by Nature Publisher Group as 'Hot Topics' (one paper per week from all NPG journals). Highlighted in Nature, Science, The Wall Street Journal, New York Times, Time, Daily Mail, Yahoo!, The Times, LA Times, Newsweek, Forbes, Scientific American, IEEE Spectrum, MIT Technology Review, Chemical & Engineering News, VOA News, Fox News, Wired, Popular Science, Chemistry World, Science News, New Scientist, ScienceDaily, UC Berkeley News etc.*
75. W. Gao,<sup>§</sup> H. Y. Y. Nyein,<sup>§</sup> Z. Shahpar, H. M. Fahad, K. Chen, S. Emaminejad, Y. Gao, L.-C. Tai, H. Ota, E. Wu, J. Bullock, Y. Zeng, D.-H. Lien, A. Javey, Wearable Microsensor Array for Multiplexed Heavy Metal Monitoring of Body Fluids, *ACS Sensors*, 2016, 1, 866.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications). Featured on Journal Cover.*
76. H. Y. Y. Nyein,<sup>§</sup> W. Gao,<sup>§</sup> Z. Shahpar, S. Emaminejad, K. Chen, H. M. Fahad, L.-C. Tai, H. Ota, Y. Gao, A. Javey, A Wearable Electrochemical Platform for Non-Invasive Monitoring of Ca<sup>2+</sup> and pH, *ACS Nano*, 2016, 10, 7216.
77. W. Gao,<sup>§</sup> R. Dong,<sup>§</sup> S. Thamphiwatana,<sup>§</sup> J. Li, W. Gao, L. Zhang and J. Wang, Artificial Micromotors in the Mouse's Stomach: A Step Towards In Vivo Use of Synthetic Motors, *ACS Nano*, 2015, 9, 117.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications). Highlighted in Nature, Fox News, BBC News, Daily Mail, Scientific American, Yahoo, Popular Science, New Scientist, Chemical & Engineering News, Science Daily etc.*
78. Z. Wu<sup>§</sup>, T. Li<sup>§</sup>, W. Gao<sup>§</sup>, T. Xu, B. Jurado-Sánchez, J. Li, W. Gao, Q. He, L. Zhang, and J. Wang, Cell-Membrane-Coated Nanomotors for Effective Biodegradation, *Advanced Functional Materials*, 2015, 25, 3881.
79. W. Gao, X. Feng, A. Pei, C. R. Kane, R. Tam, C. Hennessy, J. Wang, Bio-Inspired Helical Microswimmer based on Vascular Plant, *Nano Letters*, 2014, 14, 305.  
*Highlighted in PhysOrg, ScienceDaily, Nanowerk, Gizmodo, Gizmag, la Repubblica (Italy) etc.*
80. J. Li,<sup>§</sup> W. Gao,<sup>§</sup> R. Dong, A. Pei, S. Sattayasamitsathit, J. Wang, Nanomotor Lithography, *Nature Communications*, 2014, 5, 5026. [<sup>§</sup>] *These authors contribute equally. Highlighted in Nanowerk, ScienceDaily etc.*
81. W. Gao, A. Pei, R. Dong, J. Wang, Catalytic Iridium-Based Janus Micromotors Powered by Ultralow Levels of Chemical Fuels, *Journal of the American Chemical Society*, 2014, 136, 2276.
82. W. Gao, J. Wang, Synthetic Micro/Nanomotors in Drug Delivery, *Nanoscale*, 2014, 6, 10486
83. W. Gao, J. Wang, The Environmental Impact of Micro/Nanomachines: A Review, *ACS Nano*, 2014, 8, 3170.  
*Highlighted in Nanowerk.*
84. W. Gao, S. Sattayasamitsathit, J. Orozco, J. Wang, Efficient Bubble Propulsion of Polymer-Based Microengines in Real-Life Environments, *Nanoscale*, 2013, 5, 8909. 'HOT' article.
85. W. Gao<sup>§</sup>, X. Feng<sup>§</sup>, A. Pei<sup>§</sup>, Y. Gu, J. Li, J. Wang, Seawater-Driven Magnesium based Janus Micromotors for Environmental Remediation, *Nanoscale*, 2013, 5, 4696.  
*'HOT' article. Highlighted in Chemistry World.*
86. W. Gao, A. Pei, X. Feng, C. Hennessy, J. Wang, Organized Self-Assembly of Janus Micromotors with Hydrophobic Hemispheres, *Journal of the American Chemical Society*, 2013, 135, 998.
87. W. Gao<sup>§</sup>, M. D'Agostin<sup>§</sup>, V. Garcia Gradilla<sup>§</sup>, J. Orozco, J. Wang, Multi-Fuel Driven Janus Micromotors, *Small*, 2013, 9, 467.  
*"VIP" (Very Important Paper) by Wiley. Highlighted in Materials Views.*
88. W. Gao, A. Pei, J. Wang, Water-Driven Micromotors, *ACS Nano*, 2012, 6, 8432.  
*Highlighted in Nanowerk, IEEE Spectrum, and Chemical & Engineering News etc.*
89. W. Gao, S. Sattayasamitsathit, A. Uygun, A. Pei, A. Ponedal, J. Wang, Polymer-based Tubular Microbots: Role of Composition and Preparation, *Nanoscale*, 2012, 4, 2447.
90. W. Gao, A. Uygun, J. Wang, Hydrogen-Bubble Propelled Zinc-based Microrockets in Strongly Acidic Media, *Journal of the American Chemical Society*, 2012, 134, 897.  
*Highlighted in The Economist, Chemical & Engineering News, Popular Science, Discovery News, ScienceDaily, American Scientist, New Scientist, The Scientist etc.*
91. W. Gao, S. Sattayasamitsathit, J. Wang, Catalytically-Propelled Micro/Nanomotors: How Fast Can They Move? *The Chemical Record*, 2012, 12, 224.
92. W. Gao<sup>§</sup>, D. Kagan<sup>§</sup>, O. S. Pak, C. Clawson, S. Campuzano, E. Chuluun-Erdene, E. Shipton, E. E. Fullerton, L. Zhang, E. Lauga, J. Wang, Cargo-Towing Fuel-Free Magnetic Nanoswimmers for Targeted Drug Delivery, *Small*, 2012, 8, 460.  
*VIP (Very Important Paper) by Wiley. Highlighted in Chemistry Views.*



93. W. Gao, S. Sattayasamitsathit, J. Orozco, J. Wang, Highly Efficient Catalytic Microengines: Template Electro-synthesis of Polyaniline-Platinum Microtubes, *Journal of the American Chemical Society*, 2011, 133, 11862. *Highlighted in Materials Views*.
94. W. Gao, K. M. Manesh, J. Hua, S. Sattayasamitsathit, J. Wang, Hybrid Nanomotor: A Catalytically/ Magnetically Powered Adaptive Nanowire Swimmer, *Small*, 2011, 7, 2047. *VIP (Very Important Paper) by Wiley. Highlighted in Materials Views*.
95. O. S. Pak<sup>§</sup>, W. Gao<sup>§</sup>, J. Wang, E. Lauga. High-Speed Propulsion of Flexible Nanowire Motors: Theory and Experiments, *Soft Matter*, 2011, 7, 8169. *Highlighted in Chemistry World*.
96. W. Gao, S. Sattayasamitsathit, K. M. Manesh, D. Weihs, J. Wang, Magnetically-Powered Flexible Metal Nanowire Motors, *Journal of the American Chemical Society*, 2010, 132, 14403. *Highlighted in Science*, 2010, 330, 296-297.
97. X. He, T. Xu, Z. Gu, W. Gao, L.-P. Xu, T. Pan, and X. Zhang, Flexible and Superwetable Bands as a Platform Toward Sweat Sampling and Sensing, *Analytical Chemistry*, 2019, 91, 4296.
98. Q. Wang, R. Dong, C. Wang, S. Xu, D. Chen, Y. Liang, B. Ren, W. Gao, Y. P. Cai, Glucose-fueled Micromotors with Highly Efficient Visible Light Photocatalytic Propulsion, *ACS Applied Materials & Interfaces*, 2019, 11, 6201-6207.
99. X. He, T. Xu, W. Gao, L.-P. Xu, T. Pan, X. Zhang, Flexible Superwetable Tapes for On-Site Detection of Heavy Metals, *Analytical Chemistry*, 2018, 90, 14105.
100. R. Dong, Y. Cai, Y. Yang, W. Gao, B. Ren, Photocatalytic Micro-/Nanomotors: From Construction to Applications, *Accounts of Chemical Research*, 2018, 51, 1940.
101. M. Bariya, Z. Shahpar, H. Park, J. Sun, Y. Jung, W. Gao, H. Y. Y. Nyein, T. S. Liaw, L.-C. Tai, Q. P. Ngo, M. Chao, Y. Zhao, M. Hettick, G. Cho, and A. Javey, Roll-to-Roll Gravure Printed Electrochemical Sensors for Wearable and Medical Devices. *ACS Nano*, 2018, 12, 6978-6987.
102. H. Y. Y. Nyein, L.-C. Tai, Q. P. Ngo, M. Chao, G. Zhang, W. Gao, M. Bariya, J. Bullock, H. Kim, H. M. Fahad, A. Javey, A Wearable Microfluidic Sensing Patch for Dynamic Sweat Secretion Analysis, *ACS Sensors*, 2018, 3, 944.
103. T. Xu, Y. Song, W. Gao, T. Wu, L.-P. Xu, X. Zhang, and S. Wang, Superwetable Electrochemical Biosensor toward Detection of Cancer Biomarkers, *ACS Sensors*, 2018, 3, 72-78.
104. H. Wang, Y. Liang, W. Gao, R. Dong, and C. Wang, An Emulsion-Hydrogel Soft Motor Actuated by Thermal Stimulation, *ACS Applied Materials & Interfaces*, 2017, 9, 43211.
105. B. E.-F. de Ávila, P. Angsantikul, J. Li, W. Gao, L. Zhang, and J. Wang, Micromotors Go In Vivo: from Test Tubes to Live Animals, *Advanced Functional Materials*, 2018, 28, 1705640.
106. Y. Gao, H. Ota, E. W. Schaler, K. Chen, A. Zhao, W. Gao, H. M. Fahad, Y. Leng, A. Zheng, F. Xiong, C. Zhang, L. Tai, P. Zhao, R. S. Fearing, A. Javey, Wearable Microfluidic Diaphragm Pressure Sensor for Health and Tactile Touch Monitoring, *Advanced Materials*, 2017, 29, 1701985. *Featured on Journal Cover*.
107. H. Ota, M. Chao, Y. Gao, E. Wu, L.-C. Tai, K. Chen, Y. Matsuoka, K. Iwai, H. M. Fahad, W. Gao, H. Y. Y. Nyein, L. Lin, A. Javey. 3D Printed 'Earable' Smart Devices for Real-time Detection of Core Body Temperature, *ACS Sensors*, 2017, 2, 990. *Selected as ACS Editors' Choice (one paper per day from all ACS publications). Highlighted in IEEE Spectrum*.
108. H. M. Fahad, H. Shiraki, M. Amani, C. Zhang, V. S. Hebbar, W. Gao, H. Ota, M. Hettick, D. Kiriya, Y.-Z. Chen, Y.-L. Chueh and A. Javey, Room temperature multiplexed gas sensing using chemical-sensitive 3.5-nm-thin silicon transistors, *Science Advances*, 2017, 3, e1602557. *Highlighted in Nature Nanotechnology, IEEE Spectrum*.
109. J. Li, B. Esteban-Fernandez de Avila, W. Gao, L. Zhang, J. Wang, Micro/nanorobots for biomedicine: delivery, surgery, sensing and detoxification, *Science Robotics*, 2017, 2, eaam6431. *Highlighted in IEEE Spectrum*.
110. Q. Zhang, R. Dong, Y. Wu, W. Gao, Z. He, and B. Ren, Light-Driven Au-WO<sub>3</sub>@C Janus Micromotors for Rapid Photodegradation of Dye Pollutants, *ACS Applied Materials & Interfaces*, 2017, 9, 4674.
111. R. Dong, Y. Hu, Y. Wu, W. Gao, B. Ren, Q. Wang, Y. Cai, Visible Light-Driven BiOI-Based Janus Micromotor in Pure Water, *Journal of the American Chemical Society*, 2017, 139, 1722-1725.
112. D. Kiriya, P. Lobaccaro, H. Y. Y. Nyein, P. Taheri, M. Hettick, H. Shiraki, C. M. Sutter-Fella, P. Zhao, W. Gao, R. Maboudian, Joel W. Ager, A. Javey, General Thermal Texturization Process of MoS<sub>2</sub> for Efficient Electrocatalytic Hydrogen Evolution Reaction, *Nano Letters*, 2016, 16, 4047.

113. K. Chen, W. Gao, S. Emaminejad, D. Kiriya, H. Ota, H. Y. Nyein, A. Javey, Printed Carbon Nanotube-Based Flexible Electronics and Systems, *Advanced Materials*, 2016, 28, 4397.  
*Featured on Journal Frontispiece.*
114. H. Ota, S. Emaminejad, Y. Gao, A. Zhao, E. Wu, S. Challa, K. Chen, H. M. Fahad, A. K. Jha, D. Kiriya, W. Gao, H. Shiraki, K. Morioka, A. R. Ferguson, K. E. Healy, R. W. Davis, A. Javey, Application of 3D Printing for Smart Objects with Embedded Electronic Sensors and Systems, *Advanced Materials Technologies*, 2016, 1, 160013.  
*Featured on Journal Cover.*
115. R. Dong, Q. Zhang, W. Gao, A. Pei, B. Ren, Highly Efficient Light-driven TiO<sub>2</sub>-Au Janus Micromotors, *ACS Nano*, 2016, 10, 839.
116. Z. Wu, T. Si, W. Gao, Y. Wu, J. Wang, Q. He, Superfast Near-Infrared Light-Driven Polymer Multilayer Rockets, *Small*, 2016, 12, 577.  
*Featured on Journal Cover.*
117. R. Dong, J. Li, I. Rozen, B. Ezhilan, T. Xu, C. Christianson, W. Gao, D. Saintillan, B. Ren, J. Wang, Vapor-Driven Propulsion of Catalytic Micromotors, *Scientific Reports*, 2015, 5, 13226.
118. W. Zhu, J. Li, Y. J. Leong, I. Rozen, X. Qu, R. Dong, Z. Wu, W. Gao, P. H. Chung, J. Wang\*, and S. Chen\*, 3D-Printed Artificial Micro-Fish, *Advanced Materials*, 2015, 27, 4411.  
*Featured on Journal Cover. Highlighted in The Washington Post, Forbes, Fortune, Discovery News, Wired, BBC Focus, Popular Science, Science Daily etc.*
119. S. Cinti, G. Valdés-Ramírez, W. Gao, J. Li, G. Palleschi, J. Wang, Microengine-Assisted Electrochemical Measurements at Printable Sensor Strips, *Chemical Communications*, 2015, 51, 8668.
120. T. Xu, F. Soto, W. Gao, R. Dong, V. Garcia-Gradilla, E. Magana, X. Zhang, J. Wang, Reversible Swarming and Separation of Self-propelled Chemically-Powered Nanomotors under Acoustic Fields, *Journal of the American Chemical Society*, 2015, 37, 2163.
121. B. Ezhilan, W. Gao, A. Pei, I. Rozen, R. Dong, B. Jurado-Sanchez, J. Wang, D. Saintillan, "Motion-based Threat Detection using Microparticles: Experiments and Numerical Simulations", *Nanoscale*, 2015, 7, 7833.
122. B. Jurado-Sánchez, S. Sattayasamitsathit, W. Gao, L. Santos, Y. Fedorak, V. V. Singh, J. Orozco, M. Galarnyk, J. Wang, Self-Propelled Activated-Carbon Janus Micromotors for Efficient Water Purification, *Small*, 2015, 11, 499.
123. Z. Wu, T. Li, J. Li, W. Gao, T. Xu, C. Christianson, W. Gao, M. Galarnyk, Q. He, L. Zhang, J. Wang, Turning Erythrocytes to Functional Micromotors, *ACS Nano*, 2014, 8, 12041.
124. J. Li, V. V. Singh, S. Sattayasamitsathit, J. Orozco, K. Kaufmann, R. Dong, W. Gao, B. Jurado-Sanchez, Y. Fedorak, J. Wang, Water-Driven Micromotors for Rapid Photocatalytic Degradation of Biological and Chemical Warfare Agents, *ACS Nano*, 2014, 8, 11118.  
*Highlighted in BBC News, ScienceDaily, Nanowerk etc.*
125. T. Xu, F. Soto, W. Gao, V. Garcia-Gradilla, J. Li, X. Zhang, J. Wang, Ultrasound-Modulated Bubble Propulsion of Chemically-Powered Microengines, *Journal of the American Chemical Society*, 2014, 136, 8552.
126. J. Orozco, B. Jurado-Sánchez, G. Wagner, W. Gao, R. Vazquez-Duhalt, S. Sattayasamitsathit, M. Galarnyk, A. Cortés, D. Saintillan, J. Wang, Bubble-Propelled Micromotors for Enhanced Transport of Passive Tracers, *Langmuir*, 2014, 30, 5082.
127. S. Sattayasamitsathit, H. Kou, W. Gao, W. Thavarajah, K. Kaufmann, L. Zhang, J. Wang, Fully-Loaded Micromotors for Combinatorial Delivery and Autonomous Release of Cargoes, *Small*, 2014, 10, 2830.
128. J. Li, S. Sattayasamitsathit, R. Dong, W. Gao, R. Tam, X. Feng, S. Ai, J. Wang, Template Electrosynthesis of Tailored-Made Helical Nanoswimmers, *Nanoscale*, 2014, 6, 9415-9420. 'HOT' article.
129. E. S. Olson, J. Orozco, Z. Wu, C. D. Malone, B. Ha Yi, W. Gao, M. Eghtedari, J. Wang, R. F. Mattrey, Toward *In Vivo* Detection of Hydrogen Peroxide with Ultrasound Molecular Imaging, *Biomaterials*, 2013, 34, 8918.
130. V. Garcia-Gradilla, J. Orozco, S. Sattayasamitsathit, F. Soto, F. Kuralay, A. Pourazary, A. Katzenberg, W. Gao, Y. Shen, J. Wang, Functionalized Ultrasound-Propelled Magnetically-Guided Nanomotors: Towards Practical Biomedical Applications, *ACS Nano*, 2013, 7, 9232.  
*Highlighted in ACS Nano, The Guardian (UK).*
131. J. Li, J. Zhang, W. Gao, G. Huang, Z. Di, R. Liu, J. Wang, Y. Mei, Dry-Released Nanotubes and Nanoengines by Particle-Assisted Rolling, *Advanced Materials*, 2013, 25, 3715.
132. Y. Gu, S. Sattayasamitsathit, K. Kaufmann, R. Vazquez-Duhalt, W. Gao, J. Wang, Self-Propelled Chemically-Powered Plant-Tissue Biomotors, *Chemical Communications*, 2013, 49, 7307.  
*Highlighted in Chemistry World.*
133. J. Orozco, A. Cortés, G. Cheng, S. Sattayasamitsathit, W. Gao, X. Feng, Y. Shen, J. Wang, Molecularly Imprinted Polymer-Based Catalytic Micromotors for Selective Protein Transport, *Journal of the American Chemical Society*, 2013, 135, 5336.

134. J. Orozco, V. García-Gradilla, M. D'Agostino, W. Gao, A. Cortés, J. Wang, Artificial Enzyme-Powered Microfish for Water-Quality Testing, *ACS Nano*, 2013, 7, 818.  
*Highlighted in Nanowerk.*
135. K. M. Manesh, S. Campuzano, W. Gao, M. J. Lobo-Castañón, I. Shitanda, K. Kiantaj, J. Wang, Nanomotor-Based Biocatalytic Patterning of Helical Metal Microstructures, *Nanoscale*, 2013, 5, 1310.
136. M. García, J. Orozco, M. Guix, W. Gao, S. Sattayasamitsathit, A. Escarpa, A. Merkoci, J. Wang, Micromotor-based Lab-on-Chip Immunoassay, *Nanoscale*, 2013, 5, 1325.  
*'HOT' article. Highlighted in RSC Blog.*
137. F. Kuralay, S. Sattayasamitsathit, W. Gao, A. Uygun, A. Katzenberg, J. Wang, Self-Propelled Carbohydrate-Sensitive Microtransporters with 'Built-In' Boronic-Acid Recognition for Isolating Sugars and Cells, *Journal of the American Chemical Society*, 2012, 134, 15217.
138. J. Wang, W. Gao, Nano/Microscale Motors: Biomedical Opportunities and Challenges, *ACS Nano*, 2012, 6, 5745. *Highlighted in Nanowerk.*
139. M. Guix, J. Orozco, M. Garcia, W. Gao, S. Sattayasamitsathit, A. Merkoci, A. Escarpa, J. Wang, Superhydrophobic Alkanethiol-Coated Microsubmarines for Effective Removal of Oil, *ACS Nano*, 2012, 6, 4445. *Highlighted in Chemical & Engineering News, BBC News, The Engineer, Wired, Popular Science, and Discovery News etc.*
140. S. Sattayasamitsathit, A. M. O'Mahony, X. Xiao, S. M. Brozik, C. M. Washburn, D. R. Wheeler, W. Gao, S. Minter, J. Cha, D. B. Burckel, R. Polsky, J. Wang, Highly Ordered Tailored Three-Dimensional Hierarchical Nano/Microporous Gold-Carbon Architectures, *Journal of Materials Chemistry*, 2012, 22, 11950.
141. S. Campuzano, J. Orozco, D. Kagan, M. Guix, W. Gao, S. Sattayasamitsathit, J. C. Claussen, A. Merkoçi, J. Wang, Bacterial Isolation by Lectin-Modified Microengines, *Nano Letters*, 2012, 12, 396.  
*Highlighted in Nanowerk.*
142. J. Orozco, S. Campuzano, D. Kagan, M. Zhou, W. Gao, J. Wang, Dynamic Isolation and Unloading of Target Proteins by Aptamer-Modified Microtransporters, *Analytical Chemistry*, 2011, 83, 7962.
143. S. Sattayasamitsathit, W. Gao, P. Calvo-Marzal, K. M. Manesh, J. Wang, Simplified Cost-Effective Preparation of High Performance Pt-Ag Nanowire Motors, *ChemPhysChem*, 2010, 11, 2802.
144. Y. Dong, W. Gao, Q. Zhou, Y. Zheng, Z. You, Characterization of the Gas Sensors based on Polymer-Coated Resonant Microcantilevers for the Detection of Volatile Organic Compounds, *Analytica Chimica Acta*, 2010, 671, 85.
145. Y. Dong, W. Gao, Y. Zheng, Z. You, Electrothermal Driving Microcantilever Resonator as a Platform for Chemical Gas Sensing, *Tsinghua Science and Technology*, 2010, 15, 481.
146. Y. Dong, W. Gao, Z. You, Direct Bonding SOI Wafer Based Cantilever Resonator for Trace Gas Sensor Application, *IEEE NEMS*, 2009, 134.

## Books and Book Chapters

1. J. R. Sempionatto, J. Lasalde Ramírez, Y. Yang, W. Gao, chapter on Point of Care Genomics, Proteomics, Biomarkers, and Precision Nutrition: Emerging Point of Care Sensors for Precision Nutrition, in *Precision Nutrition*, 403-416, Elsevier, 2023.
2. Y. Song, W. Gao, H. Zhang, *Integrated Smart Micro-Systems Toward Personalized Healthcare*, Wiley-VCH, 2022.
3. J. Sempionatto, W. Gao, chapter on Wearable Chemosensors, in book *Wearable Physical, Chemical and Biological Sensors*, Springer Nature, 2022.
4. M. You, D. Mukasa, W. Gao, chapter on Microrobots in the Gastrointestinal Tract, in book *Field-Driven Micro and Nanorobots for Biology and Medicine*, pp 349-367, Springer Nature, 2021.

## Patents and Invention Disclosures

1. Imaging-guided bioresorbable acoustic hydrogel microrobots, *disclosure filed at Caltech.*
2. A smart mask for exhaled breath condensate harvesting and analysis, *disclosure filed at Caltech.*
3. Deep tissue in vivo printing, US18/444,514.
4. 3D-printed electronic skin for machine learning-powered health surveillance, *patent filed at Caltech.*
5. Wearable sensors for stress assessment, 63/523,443.
6. Wearable aptamer nanobiosensor for female hormone monitoring, US18/605,727.
7. Wearable microfluidic bioaffinity sensor for automatic molecular analysis, US20240023880A1.
8. Systems and methods for powering autonomous sweat sensor, US18/077,846.
9. Wearable autonomous biomimetic sweat sensor for precision nutrition, US20220378342A1.
10. Methods and printed interface for robotic physicochemical sensing, US63/282,644.

11. Systems and methods for a smart bandage for monitoring and treating wounds, US63/282,610.
12. Non-invasive method and device for continuous sweat induction and collection, US20230157592A1.
13. Multiplexed sensor for ultra-fast and low-cost COVID-19 diagnosis and monitoring, US11,585,778.
14. Auto-powered synthetic skin, US 12,00,876 B2.
15. Systems and methods for powering autonomous sweat sensor, US17/486,724.
16. Laser-enabled lab on the skin, US16/875,834.
17. Image-guided microrobotic methods, systems, and devices, US16/946,496.
18. Electrochemical sensing approach for molecule quantification in body fluids, US11,549,934 B2.
19. Autonomous sweat extraction and analysis using a fully-integrated wearable platform, US 15/700,119.
20. Wearable sensor arrays for in situ body fluid analysis, US15/758,327.
21. Method and system for in vivo hydrogen peroxide detection with ultrasound, US 9,713.459 B2.
22. Membrane template synthesis of microtube engines, US 10,851,463 B2.
23. Electronic nose used for food safety monitoring, CN 101788440 A.

### Invited/Keynote/Plenary Lectures and Seminars (total>280)

1. Duke University, Mechanical Engineering and Materials Science, Durham, NC, USA, Oct 2024.
2. 2024 3M NTFA symposium, St Paul, MN, USA, Oct 2024.
3. *Keynote*, the 8<sup>th</sup> International Symposium of Flexible & Stretchable Electronics 2024, virtual, Sep 2024.
4. *Keynote*, University of Kentucky, the first annual Bioelectronic and Nanomedicine Research Day, Sep 2024.
5. 6th IEEE International Flexible Electronics Technology Conference (IFETC), Bologna, Italy, Sep 2024.
6. *Keynote*, Wearable Innovations for Health Equity Workshop, Georgia Tech, Atlanta, GA, Sep 2024.
7. University of New South Wales, Distinguished Seminar - Mechanical & Manufacturing Engineering, Aug 2024.
8. 32nd International Materials Research Congress 2024, Cancun, Mexico, Aug 2024.
9. ACS Fall 2024, Denver, Colorado, Aug 2024.
10. *Keynote*, 75th Annual Meeting of the International Society of Electrochemistry, Montreal, CA, Aug 2024.
11. 2024 Bioanalytical Sensors Gordon Research Conference, Newport, RI, Jun 2024.
12. *Plenary*, XVII International Workshop on Sensors and Molecular Recognition, Valencia, Spain, Jun 2024.
13. Sungkyunkwan University, Brainlink Research Seminar, South Korea, Jun 2024.
14. *Plenary*, the Global Conference of Innovation Materials (GCIM 2024), Jeju, South Korea, Jun 2024.
15. *Keynote*, HKU the ABIC International Symposium of Biomedical Research Translation, Hong Kong, Jun 2024
16. Tsinghua Shenzhen International Graduate School, Institute of Data and Information, Shenzhen, Jun 2024.
17. Southern University of Science and Technology, Materials Science and Engineering, Shenzhen, Jun 2024.
18. Shenzhen University, Chemical and Environmental Engineering, Shenzhen, Jun 2024.
19. HKU BME International Symposium 2024 – Humanizing BME, Hong Kong, Jun 2024.
20. *Keynote*, National Autonomous University of Mexico (UNAM Campus Juriquilla), May 2024.
21. 7th International Conference on Nanogenerators and Piezotronics, Madison, WI, May 2024.
22. *Keynote*, 4th International Electronics Conference on Biosensors (IECB), virtual, May 2024.
23. 2024 Wound Healing Society (WHS) & Symposium on Advanced Wound Care Spring, Orland, FL, May 2024.
24. Curiosity Student Connecting Taiwan, Webinar, May 2024.
25. Nature Conference Advancing Health with AI, Wenzhou, China, Apr 2024.
26. MRS Spring Meeting & Exhibit, *neuromorphic electronics*, Seattle, WA, Apr 2024.
27. MRS Spring Meeting & Exhibit, *wearable biosensors*, Seattle, WA, Apr 2024.
28. ONR Undersea Medicine - NAVSEA Deep Submergence Biomedical Development Program, Apr 2024.
29. IEEE RoboSoft 2024, San Diego, CA, Apr 2024.
30. Chongqing University, Medical School, China, virtual, Apr 2024.
31. University of Texas, Austin, Materials Science, Austin, Apr 2024.
32. *Keynote*, SPIE Soft Mechatronics and Wearable Systems Conference, Long Beach, CA, Mar 2024.
33. The 21st Annual World Congress of Society for Brain Mapping and Therapeutics, Los Angeles, Mar 2024.
34. Brown University, Biomedical Engineering, Mar 2024.
35. *Keynote*, TMS 2022 Annual Meeting & Exhibition, Orlando, FL, Mar 2024.
36. LEAP 2024, Riyadh, Saudi Arabia, Mar 2024.
37. Pittcon 2024, *wearable biosensors*, San Diego, CA, Feb 2024.
38. Pittcon 2024, *point-of-care analysis*, San Diego, CA, Feb 2024.
39. Croucher Advanced Study Institute on Medical Robots with Soft/Miniature Designs, Hong Kong, Jan 2024.
40. City University of Hong Kong, Biomedical Engineering, Hong Kong, Jan 2024.
41. Molecular Medicine Youth Forum, Virtual, Jan 2024.
42. Caltech Medical Engineering Special Seminar, Pasadena, CA, Jan 2024.

43. Shenzhen University, Biomedical Engineering, virtual, Jan 2024.
44. PSSO Club Talk, Polytechnic School, Pasadena, CA, Jan 2024.
45. Earnest C. Watson Lecture, Caltech, Pasadena, CA, Dec 2023.
46. Zhejiang University, Mechanical Engineering, Hangzhou, China, Dec 2023.
47. *Keynote*, International Conference on Flexible Electronics (ICFE 2023), Hangzhou, China, Dec 2023.
48. 2023 IEEE NanoMED conference, Okinawa, Japan, Dec 2023.
49. University of Chicago, Pritzker School of Molecular Engineering, Nov 2023.
50. Northwestern University, Biomedical Engineering, Nov 2023.
51. MRS Fall Meeting & Exhibit, Boston, MA, Nov 2023.
52. Frontiers in Engineering & Applied Science, Caltech, Nov 2023.
53. *Keynote*, KAIST Emerging Materials Symposium, Nov 2023.
54. The 6th World Laureates Forum, Shanghai, China, Nov 2023.
55. ShanghaiTech University, Biomedical Engineering, Shanghai, China, Nov 2023.
56. The 7th International Conference on Advanced Electromaterials (ICAE 2023), Jeju, South Korea, Oct 2023.
57. Los Angeles Chinese Investigators Forum in Biotechnology, Engineering and Medicine, USC, CA, Oct 2023.
58. *Keynote*, The 11th International Conference on Advanced Fibers and Polymer Materials, Shanghai, Oct 2023.
59. *Keynote*, nanoBalkan International Conference (NB2023), Tirana, Albania, Oct 2023.
60. 244th Electrochemical Society (ECS) Meeting, Gothenburg, Sweden, Oct 2023.
61. Croucher Foundation Workshop on Medical Microrobots for Translational Biomedicine, CUHK, Oct 2023.
62. ETH Zurich, Distinguished Seminar Series in Robotics, Systems and Control, Oct 2023.
63. ETH Zurich, Seminar on Next Generation Digital Biomarkers, Oct 2023.
64. BioTechX Europe 2023, Basel, Switzerland, Oct 2023.
65. DFCON23 – ALPS Annual Interdisciplinary Diabetic Foot Conference, Anaheim, Sep 2023.
66. Virginia Tech, Distinguished Speaker Series, Mechanical Engineering, Blacksburg, VA, USA, Sep 2023.
67. University of Hong Kong, BME Distinguished Lecture, virtual, Aug 2023.
68. Georgia Institute of Technology, Institute for Electronics and Nanotechnology, Atlanta, GA, Aug 2023.
69. IEEE International Flexible Electronics Technology Conference, San Jose, CA, Aug 2023.
70. Distinguished Scholars Forum from Harvard-CSSA and THAA-Boston, virtual, Jul 2023.
71. Accounts of Materials Research (ACS) Talks, webinar, Jul 2023.
72. City of Hope Medical Center, Department of Diabetes Complications & Metabolism, Duarte, CA, Jul 2023.
73. Seoul National University, Chemical Engineering, South Korea, Jul 2023.
74. Sungkyunkwan University, Chemical Engineering, South Korea, Jul 2023.
75. Nano Korea 2023, South Korea, Jul 2023.
76. *Keynote*, CBE30, Hong Kong University of Science and Technology, Hong Kong, Jun 2023.
77. Korea National NanoFab Center, Daejeon, South Korea, Jun 2023.
78. Ulsan National Institute of Science & Technology, BME Distinguished Seminar, Ulsan, South Korea, Jun 2023.
79. *Keynote*, 33rd Anniversary World Congress on Biosensors, Busan, South Korea, Jun 2023.
80. *Keynote*, IEEE International Conference on Robotics and Automation (ICRA), London 2023.
81. ONR Undersea Medicine - NAVSEA Deep Submergence Biomedical Development Program, May 2023.
82. NIH NIMH Brain Behavior Quantification and Synchronization workshop, MD, May 2023.
83. Nano Today Conference, San Diego, Apr 2023.
84. IEEE Custom Integrated Circuits Conference (CICC), Education Session, San Antonio, TX, Apr 2023.
85. AHA iDIVERSE & NIH T32 Joint Symposium, UCLA, Apr 2023.
86. NIH National Cancer Institute webinar in the Cancer, aging, and comorbidities, Apr 2023.
87. MRS Spring Meeting & Exhibit, San Francisco, Apr 2023.
88. Massachusetts Institute of Technology, Langer Lab Seminar, Apr 2023.
89. 61th CESASC Annual Convention, CA, Apr 2023.
90. *Keynote*, TMS 2022 Annual Meeting & Exhibition, San Diego, CA, Mar 2023.
91. MGH-Harvard Medical School, Biomedical Science and Engineering Seminar, Mar 2023.
92. The International Solid-State Circuits Conference (ISSCC), Focus Session on Wearables, CA, Feb 2023.
93. Materials Today, Rising Star Award Seminar, Feb 2023.
94. University of South Carolina, Chemical Engineering Department/Biomedical Engineering Program, Feb 2023.
95. Icahn School of Medicine at Mount Sinai, Biomedical Engineering and Imaging Institute Seminar, Feb 2023.
96. NASA Human Research Program Investigators' Workshop, Feb 2023.
97. *Keynote*, Caltech Entrepreneurs Forum on Predictive Medical Diagnostics, Pasadena, Jan 2023.
98. National University of Singapore, Mechanical Engineering, Jan 2023.
99. *Keynote*, International Conference on Flexible Electronics (ICFE 2021), Dec 2022.

100. Innovations in Wound Healing Annual Conference, Islamorada, FL, Dec 2022.
101. MRS Fall Meeting & Exhibit, Boston, MA, Nov 2022.
102. Yangzhou University, School of Chemistry and Chemical Engineering, Jiangsu, China, Nov 2022.
103. 1st Great Bay Sensing Technologies for Sustainable Healthcare Symposium (GBSensTech), 2022.
104. IEEE Nanotechnology Materials and Devices Conference (NMDC), Nov 2022.
105. IEEE Sensors, Dallas, TX, Nov 2022.
106. ACS Western Regional Meeting, Las Vegas, NV, Oct 2022.
107. Saint John's Cancer Institute, Santa Monica, CA, Oct 2022.
108. The International Conference on Flexible and Printed Electronics (ICFPE), Jeju, Korea, Oct 2022.
109. University of California, Los Angeles, Materials Science and Engineering Seminar, Oct 2022.
110. iCANX Talks, Virtual, Oct 2022.
111. Massachusetts Institute of Technology, Soft Materials Structures Devices Seminar, MA, Sep 2022.
112. University of California, Los Angeles, Cardiovascular Theme Distinguished Seminar, Sep 2022.
113. Next Generation Point of Care Testing, Drug Discovery News, Sep 2022.
114. Next-Generation Delivery and Diagnostics Symposium, Controlled Release Society, Sep 2022.
115. Asilomar Bioelectronics Symposium, Monterey, CA, Sep 2022.
116. ACS Fall 2022, Chicago, IL, Aug 2022.
117. *Keynote*, World Sensor Summit (virtual), Zhengzhou, China, Aug 2022.
118. Gordon Research Conference - Robotics, Ventura, CA, Aug 2022.
119. *Plenary lecture*, MARSS 2022, Toronto, Canada, Jul 2022.
120. *Microrobots Imaging*, MARSS 2022, Toronto, Canada, Jul 2022.
121. Caltech SURF Weekly Seminar, Jul 2022.
122. IEEE FLEPS, *Energy harvesting and storage*, Vienna, Austria, Jul 2022.
123. IEEE FLEPS, *Sensors Councils Young Professionals*, Vienna, Austria, Jul 2022.
124. University of Tokyo, Research Institute for Biomedical Science and Engineering, Jul 2022.
125. International Conference on Intelligent Wearable System, Hong Kong PolyU, Jun 2022.
126. *Keynote*, IUPESM WC2022, Wearable Health Technology, Singapore, Jun 2022.
127. IUPESM WC2022, Advances in Sensing and Digital Health, Singapore, Jun 2022.
128. IUPESM WC2022, IAMBE Early Career Award talk, Singapore, Jun 2022.x
129. The 6th symposium "New Ideas for Medicine - NIM", Technical University of Munich, Jun 2022.
130. International Conference on Frontier Materials (ICFM), May 2022.
131. NeoBay Robotics Forum, hosted by *Science Robotics* and SJTU, May 2022.
132. Army Research Office (ARO) Bioelectronics Workshop, Austin, TX, May 2022.
133. Convergent Research Continuous Monitoring Workshop, CA, May 2022.
134. MRS Spring Meeting & Exhibit, May 2022.
135. Southeast University, Mechanical Engineering, China, May 2022.
136. University of California, Los Angeles, System Integration in Biology, Engineering, and Medicine, May 2022.
137. Korea Institute of Science and Technology, Advanced Materials Global Forum, Apr 2022.
138. Vanderbilt University, Mechanical Engineering, Apr 2022.
139. *Keynote*, The 10th WACBE World Congress in Bioengineering, Virtual, Apr 2022.
140. IEEE NEMS 2022, Virtual, Apr 2022.
141. EuroMedLab 2022, Munich, Apr 2022.
142. Korea Advanced Institute of Science and Technology, Nano-bio robotics, Virtual, Mar 2022.
143. Pittcon 2022, Pittsburgh Conference Achievement Award, Mar 2022.
144. *Keynote*, TMS 2022 Annual Meeting & Exhibition, Anaheim, CA, Mar 2022.
145. 6th NuGO Webinar: Wearable Sensors for Research and Practice in Systems Nutrition, Feb 2022.
146. University of Connecticut, Biomedical Engineering, Feb 2022.
147. TU Dresden, Chair of Materials Science and Nanotechnology at HAL, Germany, Jan 2022.
148. Northwestern Polytechnical University, Institute of Flexible Electronics, Jan 2022.
149. Engineering Medical Innovation Summit: Medicine for the Future (EMedI Summit), Hong Kong, 2021.
150. ASBX 2021 - the 3rd Australian Space Biology x Health Summit, Nov 2021.
151. *Keynote*, International Conference on Flexible Electronics (ICFE 2021).
152. International Conference on Advanced Electromaterials (ICAE 2021), Nov 2021.
153. 3M NTFA Symposium, Nov 2021.
154. International Conference on Smart Wearable Technology, by HK Productivity Council, Oct 2021.
155. World Laureates Forum (WLA) Young Scientist Forum, Oct 2021.
156. Nanoenergy and Nanosystems 2021, Oct 2021.

157. Innovate Pasadena's CONNECT WEEK, Machine Learning-Driven Bioelectronics, Oct 2021.
158. Frontiers in Engineering & Applied Science, Caltech, Oct 2021.
159. *Keynote*, IUMRS-International Conference in Asia (IUMRS-ICA 2021), Oct 2021.
160. The International Conference on Flexible and Printed Electronics (ICFPE), Sep 2021.
161. Amgen CBEA Lecture, Sep 2021.
162. The 72nd Annual Meeting of the International Society of Electrochemistry, Aug 2021.
163. ACS Fall 2021, Atlanta, GA, Aug 2021.
164. IEEE BHI-BSN 2021, Jul 2021.
165. National University of Singapore, Innovating Health Outstanding Young Speaker Webinar, Jul 2021.
166. *Keynote*, 37th International Symposium on Microscale Separations and Bioanalysis (MSB), Jul 2021.
167. Journal of Semiconductors Public Webinar, Jul 2021.
168. Wiley SmartMat Webinar, Jul 2021.
169. *Keynote*, 7th International Symposium of Flexible and Stretchable Electronics (ISFSE), Jun 2021.
170. RSC Chemical Society Reviews Emerging Investigator Webinar, Jun 2021.
171. IEEE 71st Electronic Components and Technology Conference (ETCT), Jun 2021.
172. World Economic Forum Community Young Scientist Seminar, Jun 2021.
173. Terasaki Institute Seminar, CA, Jun 2021.
174. Nature Conference - Microrobots and Nanorobots for Biotechnology, May 2021.
175. 239<sup>th</sup> ECS Meeting with the 18<sup>th</sup> IMCS, *Laser-engraved sensors*, May 2021.
176. 239<sup>th</sup> ECS Meeting with the 18<sup>th</sup> IMCS, *COVID-test*, May 2021.
177. 239<sup>th</sup> ECS Meeting with the 18<sup>th</sup> IMCS, *Sweat sensors*, May 2021.
178. *Plenary lecture*, 2021 Korean Society of Medical and Biological Engineering Annual Conference, May 2021.
179. Virtual MRS Spring Meeting & Exhibit, Apr 2021.
180. The Hong Kong Polytechnic University, Biomedical Engineering, Apr 2021.
181. University of California, Los Angeles, Bioengineering, Apr 2021.
182. SPIE Defense + Commercial Sensing, *Laser-engraved wearable and mHealth sensors*, Apr 2021.
183. SPIE Defense + Commercial Sensing, *Self-powered sensors*, Apr 2021.
184. University of Minnesota, Design of Medical Devices Conference, Apr 2021.
185. Massachusetts Institute of Technology, NanoBio Seminar, Mar 2021.
186. *Keynote*, WNCST, Mar 2021.
187. *Keynote*, International Symposium on Advanced Sensor Technology, Korean Sensor Society, 2021.
188. The University of British Columbia, Biomedical Engineering, Feb 2021.
189. Biosensors for Pandemics 2021, Feb 2021.
190. NASA Human Research Program Investigators' Workshop (HRP IWS 2021), Feb 2021.
191. The 1st International Conference on Data Driven Materials Innovation 2021 (D2MI2021), Feb 2021.
192. University of Houston, Distinguished Seminar of Materials Science and Engineering, Jan 2021.
193. KNI Special Seminar, Caltech, Jan 2021.
194. Seoul National University, Materials Science and Engineering, Distinguished seminar, Jan 2021.
195. University of California, Davis, Biomedical Engineering Young Faculty Speaker Seminar, Jan 2021.
196. SJTU Workshop on Micro-nano Robotics, Dec 2020.
197. AIP Horizons Symposium on COVID-19 and Photonics, Dec 2020.
198. MRS Fall Meeting & Exhibit, Nov 2020.
199. *Keynote*, Virtual Symposium in Plant Omics Science, OMICAS, Nov 2020.
200. Nanyang Technological University, Webinar on Flexible Materials & Devices, Nov 2020.
201. 2020 IEEE WSAIM, Nov 2020.
202. 20th Annual Diabetes Technology Meeting, Nov 2020.
203. Georgia Institute of Technology, Nano@Tech Seminar, Nov 2020.
204. BMES Virtual Annual Meeting, Oct 2020.
205. ECS PRiME 2020, I - Wearable biosensors (Virtual), Oct 2020.
206. ECS PRiME 2020, II - Biofuel cells (Virtual), Oct 2020.
207. POSTECH CiTE Seminar (Virtual), Oct 2020.
208. Frontiers in Engineering & Applied Science, Caltech, Oct 2020.
209. Virtual IEEE NEMS 2020, Sep 2020.
210. *Keynote*, 5th Bioengineering & Translational Medicine Conference at UCLA (Virtual), Sep 2020.
211. CSMNT2020 (Virtual), Sep 2020.
212. University of Pennsylvania, Electrical and Systems Engineering (Virtual), Sep 2020.
213. Rice University, Bioengineering (Virtual), Sep 2020.

214. MINE 2020 Young Scientists Forum by Microsystems & Nanoengineering, Jul 2020.
215. US National Nanotechnology Initiative, Sensors NSI Webinar Series, Jun 2020.
216. iCANX ACS Nano Rising Star Lecture (in Nanoscience and Nanotechnology), Jun 2020.
217. 44th Annual Virtual Conference of American Society of Preventive Oncology, Jun 2020.
218. Wearable Tech + Digital Health + Neurotech conferences, Menlo Park, CA, Feb 2020.
219. Boston University, Precision Diagnostics Center Symposium, Boston, MA, Feb 2020.
220. National University of Singapore, Biomedical Engineering, Singapore, Dec 2019.
221. *Keynote*, ICBME 2019, Singapore, Dec 2019.
222. University of Texas, Austin, Texas Wireless Summit, Nov 2019.
223. NASA Space Health Innovation Conference 2019, San Francisco, Nov 2019.
224. *President's Lecture*, The Lundquist Institute, Torrance, CA, Oct 2019.
225. AI4Science Workshop, Caltech, Oct 2019.
226. University of California, Irvine, Chemical & Biological Engineering, Oct 2019.
227. 258th National Meeting of the American Chemical Society, San Diego, Aug 2019.
228. 2019 Micro- Nanotechnologies for medicine Workshop, UCLA, Jul 2019.
229. *Keynote*, International Conference on Flexible Electronics 2019, Hangzhou, Jul 2019.
230. Hamlyn Symposium on Medical Robotics, London, Jun 2019.
231. 10th International Conference on Materials for Advanced Technologies, Singapore, Jun 2019.
232. *Keynote*, 2019 Joint Ontario-on-a-Chip and TOeP Symposium, Toronto, May 2019.
233. Pittcon 2019 - ACS Sensors Symposium, Philadelphia, Mar 2019.
234. *Plenary lecture*, AACR - Modernizing Population Sciences in the Digital Age, San Diego, Feb 2019.
235. IEEE EMBS Micro & Nanotechnology in Medicine Conference, Hawaii, Dec 2018.
236. IST Lunch Bunch Seminar, Caltech, Nov. 2018.
237. University of California, Riverside, Bioengineering, Nov 2018.
238. Washington University in St. Louis, ESE, Nov 2018.
239. Wearable Biosensor, MRS Fall, Boston, Nov 2018.
240. Ingestible Microrobots - Toward In Vivo Use, MRS Fall, Boston, Nov 2018.
241. *Keynote*, SES 2018, Madrid, Spain, Oct 2018.
242. *Keynote*, SoCal Micro & Nanofluidics Symposium, Los Angeles, Aug 2018.
243. NASA TRISH 2018 AI Workshop, Pasadena, July 2018.
244. City of Hope National Medical Center, Los Angeles, May 2018.
245. Materials Science Research Lecture, Caltech, May 2018.
246. Cedars-Sinai Medical Center, Los Angeles, May 2018.
247. Purdue University, Birck Nanotechnology Center, Nov 2017.
248. International Conference on Micro/Nanomachines, Wuhan, August 2017.
249. Nanjing University, Chemistry and Chemical Engineering, July 2017.
250. Beijing Institute of Nanoenergy and Nanosystems, Chinese Academic of Sciences, July 2017.
251. Tsinghua University, Engineering Mechanics, July 2017.
252. Perking University, Institute of Microelectronics, July 2017.
253. University of Science and Technology Beijing, Chemistry and Biological Engineering, July 2017.
254. Institute of Chemistry, Chinese Academic of Sciences, July 2017.
255. Changchun Institute of Applied Chemistry, Chinese Academic of Sciences, July 2017.
256. ISFSE 2017 3rd International Symposium of Flexible and Stretchable Electronics, Wuhan, June 2017.
257. University of Washington, Mechanical Engineering, Apr 2017.
258. Massachusetts Institute of Technology, EECS & IMES, Mar 2017.
259. University of California, Berkeley, Mechanical Engineering, Mar 2017.
260. University of Illinois at Urbana–Champaign, Electrical and Computer Engineering, Mar 2017.
261. University of Southern California, Mechanical Engineering, Mar 2017.
262. California Institute of Technology, Medical Engineering, Feb 2017.
263. Rice University, Mechanical Engineering, Feb 2017.
264. University of Pennsylvania, Chemical and Biomolecular Engineering, Feb 2017.
265. University of California, Los Angeles, Bioengineering & Chemical Engineering, Feb 2017.
266. Ohio State University, Mechanical Engineering, Feb 2017.
267. UNC/NCSU Joint Bioengineering & UNC Applied Physical Sciences, Jan 2017.
268. University of Illinois at Urbana–Champaign, Chemical and Biomolecular Engineering, Jan 2017.
269. Johns Hopkins University, Chemical and Biomolecular Engineering, Jan 2017.
270. University of Maryland, Bioengineering, Dec 2016.



271. Solid State Technology and Devices Seminar, EECS, University of California, Berkeley, Nov 2016.
272. Innovators Under 35, EmTech MIT 2016.
273. Future Innovator Forum, IBM Edge 2016.
274. IEEE Workshop on Flexible/Printed/Fabric Sensors and Systems, 2016.
275. 2016 Fall BSAC Research Review & IAB Meeting.
276. Sensors Expo 2016.
277. 2015 Integrated Nanotechnologies Meeting, Sandia National Laboratories, Albuquerque, NM, 2015.
278. DIC Young Investigator Symposium, 250th ACS National Meeting & Exposition, 2015.
279. Graduate Student Award Session, 2014 MRS Spring Meeting & Exhibit.
280. Bionanotechnology Graduate Student Award Session, 2013 AIChE Annual Meeting, 2013.
281. University of Washington, Distinguished Young Scholars Summer Seminar Series (DYSS), 2013.
282. Graduate Student Award Session, 2013 MRS Spring Meeting & Exhibit, 2013.