Feng Zhao, Ph.D.
Professor
Electrical and Computer Engineering
119 Emerson Electric Co Hall, 301 W 16th St,
Rolla, MO 65409

EDUCATION

2004, Ph.D. in Electrical Engineering, University of Colorado, Boulder, CO
2001, M.Eng. in Materials Engineering, Nanyang Technological University, Singapore
1997, B.S. in Materials Science and Engineering, Xi'an Jiaotong University, Xi'an, China

PROFESSIONAL EXPERIENCE

2025-present	Professor, Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO
2023-2025	Professor, Electrical Engineering, School of Engineering and Computer Science, Washington State University, Vancouver, WA
2017-2023	Associate Professor, Electrical Engineering, School of Engineering and Computer Science, Washington State University, Vancouver, WA
2011-2017	Assistant Professor, Electrical Engineering, School of Engineering and Computer Science, Washington State University, Vancouver, WA
2008-2011	Assistant Professor, Electrical Engineering, University of South Carolina, Columbia, SC
2004-2008	Device Scientist, Microsemi Corp., Boulder/Bend, CO/OR

RESEARCH INTERESTS

Microelectronics, nanoelectronics, nanomaterials, semiconductors, microelectromechanical (MEMS) and nanoelectromechanical (NEMS) systems, sensors, chip design, fabrication, testing, and modeling..

- Resistive switching, ReRAM, non-volatile memory, artificial synaptic devices, neuromorphic computing.
- MEMS/NEMS resonators, actuators, sensors.
- 2-dimensional materials (graphene, MoS_2, In_2Se_3) crystal growth and device development.
- Organic microelectronics and nanoelectronics.
- Wide bandgap silicon carbide (SiC) and gallium nitride (GaN) materials and high voltage, high power and high frequency devices.

SELECTED PUBLICATIONS

- Y.Z. Seah, Z. Templin, Z.G. Xiao, L. Jiang, K.Y. Cheong, F. Zhao, "Evaluation of thermal effects on natural organic honey memristive thin film for resistive switching memory applications," Organic Electronics, vol. 140, 107210, 2025. DOI: 10.1016/j.orgel.2025.107210
- M. Awais, N. Othman, M.D. Shafiq, F. Zhao, K.Y. Cheong, "Role of sulphur in resistive switching behavior of natural rubber-based memory," Nanotechnology, vol. 36, 035201, 2025. DOI: 10.1088/1361-6528/ad8890

- M. McGarrity, F. Zhao, "A Deep Autoencoder for Electric Double Layer Capacitance Prediction in Electrochemical Sensors," Applied Physics Letters, vol. 125, 164103, 2024. DOI: 10.1063/5.0237803 Featured Article
- J.Z. Yeoh, M. Awais, F. Zhao, K.Y. Cheong, "Effects of silver nanoparticles in pectin polysaccharides thin film on resistive switching characteristics," Journal of Electronic Materials, vol. 53, 7071-7084, 2024. DOI: 10.1007/s11664-024-11401-5
- H. Uppaluru, Z. Templin, M.R. Khan, M.O. Faruque, F. Zhao, J.H. Wang, "256-level honey memristor based in-memory neuromorphic system," IET Electronics Letters, vol. 60, e70029, 2024. DOI: 10.1049/ell2.70029
- Z. Templin, M.M.H. Tanim, F. Zhao, "Synaptic plasticity emulation by natural biomaterial honey-CNT based memristors," Applied Physics Letters, vol. 123, 243301, 2023. DOI: 10.1063/5.0174426
- A.A. Mamun, J.H. Kim, F. Zhao, "Silicon carbide (SiC) based DNA sensing technologies", Micromachine, vol. 14, 1557, 2023. DOI: 10.3390/mi14081557
- F. Fathi, B. Sueoka, F. Zhao, X.Q. Zeng, "Nitrogen-doped 4H silicon carbide single crystal electrode for selective electrochemical sensing of dopamine", Analytical Chemistry, vol. 95, 4855-4862, 2023. DOI: 10.1021/acs.analchem.2c03609
- M.M.H. Tanim, Z. Templin, K. Hood, J. Jiao, F. Zhao, "A natural organic artificial synaptic device made from a honey and carbon nanotube admixture for neuromorphic computing", Advanced Materials Technologies, vol. 8, 2202194, 2023. DOI: 10.1002/admt.202202194
- Md M.H. Tanim, B. Sueoka, Z.G. Xiao, K.Yew Cheong, F. Zhao, "Study of carbon nanotube embedded honey as a resistive switching material," Nanotechnology, vol. 33, 495705, 2022. DOI: 10.1088/1361-6528/ac8f51
- B. Sueoka, Md M.H. Tanim, L. Williams, Z.G. Xiao, K.Y. Cheong, F. Zhao, "A synaptic memristor based on natural organic honey with neural facilitation", Organic Electronics, vol. 109, 106622, 2022. DOI: 10.1016/j.orgel.2022.106622
- W. Du, L. Miller, F. Zhao, "Numerical study of graphene/Au/SiC waveguide-based surface plasmon resonance sensor," Biosensors, vol. 11, 455, 2021. DOI: 10.3390/bios11110455
- C.H. Cheng, J.W. Lai, K.T. Hu, C.F. Huang, F. Zhao, "On the effects of high-K dielectric RESURF in high-voltage bulk FinFETs," IEEE Journal of the Electron Devices Society, vol. 8, pp. 565-571, 2020. DOI: 10.1109/JEDS.2020.2997804
- W. Cheng, M. He, S. Lei, L. Wang, J. Wu, F. Zeng, Q. Hu, Q. Wang, F. Zhao, M. Chan, G. Xia, H. Yu, "Increasing Threshold Voltage and Reducing Leakage of AlGaN/GaN HEMTs Using Dual-Layer SiNx Stressors," Semiconductor Science and Technology, vol. 35, 045010, 2020.
- S. Lei, W. Cheng, J. Wu, L. Wang, Q. Wang, G. Xia, F. Zhao, H. Yu, "Low Leakage GaN HEMTs with Sub-100 nm T-shape Gates Fabricated by a Low-damage Etching Process," Journal of Materials Science: Materials in Electronics, vol. 31, pp. 5886-5891, 2020.
- C.H. Cheng, C.F. Huang, K.Y. Lee, F. Zhao, "A novel deep junction edge termination for superjunction MOSFETs," IEEE Electron Device Letters, vol. 39, pp. 544-547, 2018. DOI: 10.1109/LED.2018.2803199.
- F. Zhao, M.D. Trimble, "4H-SiC electrostatic microactuator with optically controlled actuation," Microsystem Technologies, vol. 23, Issue 12, pp. 5631-5634, 2017. DOI: 10.1007/s00542-017-3305-0