

Curriculum Vitae

Jie Huang, Ph.D.
Roy A. Wilkens Professor
Director of Lightwave Technology Laboratory
Department of Electrical and Computer Engineering
Missouri University of Science and Technology
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EDUCATION

Ph.D., Electrical Engineering, 2015, Clemson University, Clemson, SC 29630.

M.S., Electrical Engineering, 2012, Missouri University of Science and Technology, Rolla, MO 65409

B.S., Precision Instrument and Optoelectronics Engineering, 2009, Tianjin University, Tianjin, 300072, China

PROFESSIONAL EXPERIENCE

2025-Present: Roy A. Wilkens Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

2021-2025: Roy A. Wilkens Endowed Associate Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

2017-Present: Faculty Research Investigator, Kent D. Peaslee Steel Manufacturing Research Center (PSMRC), Missouri University of Science and Technology, Rolla, MO 65409

2016-Present: Research Investigator, Materials Research Center (MRC), Missouri University of Science and Technology, Rolla, MO 65409

2016-Present: Research Investigator, Intelligent Systems Center (ISC), Missouri University of Science and Technology, Rolla, MO 65409

2016-Present: Faculty Research Investigator, Center for Biochemical Research (CBR), Missouri University of Science and Technology, Rolla, MO 65409

2015-Present: Director, Lightwave Technology Laboratory, Missouri University of Science and Technology, Rolla, MO 65409

2015-2021: Assistant Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

2013-2015: Graduate Research Assistant, Department of Electrical and Computer Engineering, Clemson University, Clemson, SC 29630

2010-2013: Graduate Research Assistant, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

HONORS AND AWARDS

2025: Faculty Research Award at Missouri S&T

2025: Certificate of Excellence at Missouri S&T

2024: Top 2% Scientists of "Optoelectronics & Photonics"

2024: ISC Distinguished Investigator Award

2023: Faculty Excellence Award at Missouri S&T

- 2023:** Top 2% Scientists of “Optoelectronics & Photonics”
- 2022:** Faculty Research Award at Missouri S&T
- 2022:** ISC Distinguished Investigator Award
- 2022:** Top 2% Scientists of “Optoelectronics & Photonics”
- 2021:** Roy A. Wilkens Endowed Professorship
- 2021:** Top 2% Scientists of “Optoelectronics & Photonics”
- 2020:** Gentec-EO Laser Lab Award
- 2019:** IEEE Saint Louis Section Outstanding Researcher
- 2019:** Faculty Excellence Award at Missouri S&T
- 2019:** Research Momentum Award at Missouri S&T
- 2019:** Keynote Speech: Fiber Optic Sensors for Industrial Applications, IEEE St. Louis Section
- 2017:** University of Missouri Faculty Scholar
- 2016:** Best Paper Award, ASME Smart Materials, Adaptive Structures, and Intelligent Systems
- 2016:** Keynote Speech: Fiber Optic Sensors, PSMRC annual meeting, Missouri S&T
- 2015:** 2nd place at the poster competition, Materials and Optics, Clemson University
- 2014:** 3rd place at the poster competition, CCOMC Conference, Anderson, SC
- 2013:** Professional enrichment grant at Clemson University
- 2012:** IEEE Instrumentation & Measurement Society Graduate Fellowship Award
- 2012:** Council of Graduate Students Travel Grant at Missouri S&T
- 2008:** Outstanding Student Leadership Award at Tianjin University

HONORS AND AWARDS FOR MENTORED STUDENTS

- 2025:** *Mike Davis:* IEEE St. Louis Section Outstanding Undergraduate Student
- 2025:** *Farhan Mumtaz:* IEEE St. Louis Section Outstanding Researcher
- 2025:** *Ruimin Jie:* IEEE St. Louis Section Outstanding Graduate Student
- 2025:** *Chen Zhu:* IEEE St. Louis Section Outstanding Young Engineer
- 2024:** *Taihao Han:* CEC Dean’s PhD Scholar Award, Missouri S&T
- 2024:** *Ogbole Collins Inalegwu:* CEC Dean’s Graduate Educator Award, Missouri S&T
- 2023:** *Ogbole Collins Inalegwu:* 1st for Best Oral Presentation Award, “Walking through High Temperatures (Up to 1600°C) Unscathed”, Missouri S&T
- 2023:** *Deva Prasaad Neelakandan:* 2023 Best Paper Award, “Distributed Temperature and Gap Measurements at the Metal-Mold Interface during Aluminium Casting using Optical Fiber Sensors”, Proceedings of the 126th Metalcasting Congress.
- 2022:** *Ogbole Collins Inalegwu:* 1st for oral presentation at the April 2022 IEEE St. Louis Section student presentations (Ph.D category)
- 2022:** *Bohong Zhang:* 2nd for oral presentation at the April 2022 IEEE St. Louis Section student presentations (Ph.D. category)
- 2022:** *Peter Holtmann:* 1st for oral presentation at the April 2022 IEEE St. Louis Section student presentations (M.S. category)

- 2022:** *Tatianna Reinbolt*: 1st for oral presentation at the April 2022 IEEE St. Louis Section student presentations (Undergraduate category)
- 2021:** *Peter Holtmann*: 2nd place for oral presentation at the October 2021 IEEE St. Louis Section student presentations (M.S. category)
- 2021:** *Muhammad Roman*: 3rd place for oral presentation at the October 2021 IEEE St. Louis Section student presentations (Ph.D. category)
- 2021:** *Muhammad Roman*: 3rd place for Graduate Student Poster Contest at the Iron & Steel Technology Conference and Exposition (Nashville, TN)
- 2021:** *Peter Holtmann*: 2nd place for oral presentation at the 2021 Undergraduate Research Conference at Missouri S&T
- 2021:** *Bohong Zhang*: CEC Dean's Graduate Educator Award, Missouri S&T
- 2021:** *Peter Holtmann*: 1st place for oral presentation at the April 2021 IEEE St. Louis Section student presentations (B.S. category)
- 2021:** *Muhammad Roman*: 2nd place for oral presentation at the April 2021 IEEE St. Louis Section student presentations (Ph.D. category)
- 2021:** *Bohong Zhang*: 2nd place for oral presentation at the April 2021 IEEE St. Louis Section student presentations (M.S. category)
- 2021:** *Chen Zhu*: IEEE St. Louis Section Outstanding IEEE Graduate Student
- 2020:** *Yiyang Zhuang*: CEC Dean's Ph.D. Scholar Award, Missouri S&T
- 2020:** *Chen Zhu*: Incubic/Milton Chang Travel Grant, Optical Society of America
- 2019:** *Chen Zhu*: CEC Dean's Ph.D. Scholar Award, Missouri S&T
- 2019:** *Muhammad Roman*: 1st place in ISC Research Poster presentation, Missouri S&T
- 2019:** *Matthew Parker*: 1st place for oral presentation at the 51st Southeastern Undergrad Research Conference (high school student)
- 2018:** *Chen Zhu*: IEEE Instrumentation and Measurement Society Graduate Fellowship Award
- 2016:** *Julia White*: Presented research projects to the state's top legislators
- 2016:** *Amir Ghazanfari*: Best student paper award at the ASME SMASIS Conference (co-authored with Dr. Ming C. Leu)

TEACHING

SUMMARY OF TEACHING EVALUATIONS

Terms	Course title	Level	Response/ Enrollment	Evaluation	New?
FS15	EE3420: Communication Systems	Senior	9/13	3.33/4.0	No
SP16	EE3600: Electromagnetics (Local)	Junior	17/26	3.29/4.0	No
SP16	EE3600: Electromagnetics (Distance)	Junior	18/22	2.78/4.0	No
FS16	EE3600: Electromagnetics	Junior	26/36	3.08/4.0	No
SP17	EE3600: Electromagnetics (Local)	Junior	21/38	3.24/4.0	No
SP17	EE3600: Electromagnetics (Distance)	Junior	7/16	3.29/4.0	No

FS17	EE3600: Electromagnetics	Junior	29/35	2.83/4.0	No
SP18	EE6001: Introduction to Nonlinear Optics	MS/PhD	13/16	3.87/4.0	Yes
FS18	EE6200: Electromagnetic Optics	MS/PhD	11/12	3.91/4.0	No
FS19	EE3600: Electromagnetics	Junior	11/32	3.27/4.0	No
SP20	EE3600: Electromagnetics	Junior	9/28	3.22/4.0	No
SP21	EE3600: Electromagnetics	Junior	21/50	3.20/4.0	No
FS21	EE5630: Wave Prop & Transmission Lines	MS/PhD	22/38	3.91/4.0	No
SP22	EE3600: Electromagnetics	Junior	14/47	2.80/4.0	No
FS22	EE5630: Wave Prop & Transmission Lines	MS/PhD	9/18	3.89/4.0	No
SP23	EE3600: Electromagnetics	Junior	14/47	3.09/4.0	No
SP24	EE6200: Electromagnetic Optics	MS/PhD	5/8	4.0/4.0	No
SP25	EE6200: Electromagnetic Optics	MS/PhD	16/22	3.96/4.0	No
FS25	EE5630: Wave Prop & Transmission Lines	MS/PhD	14/21	3.86/4.0	No

RESEARCH

CURRENT RESEARCH THRUST AREAS

1. Fiber optic sensors for extreme conditions
2. Novel photonic/microwave micro/nano materials, structures, devices and sensors
3. Ultrafast laser machining, processing, and characterization of micro/nano structures, materials and devices
4. Sensors and instrumentation for applications in harsh environments
5. Optical biomedical imaging and sensing

EXTERNAL RESEARCH GRANTS (09/2015 – 08/2025)

Total External Research Funds with Matching: \$41M

Huang’s Share: \$14M

External Funding Details (09/2015 – 12/2025) Industry/organization Federal funding

	Amount	Huang credit	Agency	Dates	Topic	Application
PI	\$16,000	\$16,000	Innovation	02/16 – 08/16	RF Sensor	Medical Health
PI	\$47,336	\$47,336	UMRB	08/16 – 06/18	Optical Sensor	Harsh Environment
PI	\$120,000	\$120,000	Industry	06/17 – 05/19	RF Sensor	Structural Health
PI	\$2,443	\$2,443	Industry	02/17 – 09/17	Optical Sensor	Harsh Environment
PI	\$16,000	\$9,600	OBI	01/18 – 12/18	RF Sensor	Medical Health

PI	\$64,086	\$64,086	Industry	09/18 – 08/19	RF Sensor	Structural Health
Co-PI	\$330,000	\$99,000	PSMRC	07/18 – 07/21	Optical Sensor	Harsh Environment
PI	\$31,050	\$31,050	Industry	06/18 – 05/19	RF Sensor	Structural Health
PI	\$60,000	\$60,000	Industry	02/18 – 01/19	RF Sensor	Structural Health
PI	\$75,000	\$60,000	Industry	06/18 – 06/19	Optical Sensor	Medical Health
PI	\$390,000	\$234,000	PSMRC	07/19 – 07/22	Optical Sensor	Harsh Environment
Co-PI	\$240,000	\$96,000	AISI	07/20 – 06/23	Optical Sensor	Harsh Environment
PI	\$378,762	\$151,505	PSMRC	07/22 – 06/25	Optical Sensor	Harsh Environment
PI	\$49,149	\$14,744	Industry	08/22 – 08/23	Optical Sensor	Harsh Environment
PI	\$313,115	\$156,558	Industry	02/24 – 01/26	Optical Sensor	Harsh Environment
Co-PI	\$339,000	\$169,500	PSMRC	07/23 – 06/26	Optical Sensor	Harsh Environment
PI	\$420,150	\$210,075	PSMRC	07/24 – 06/27	Optical/RF Sensors	Harsh Environment
PI	\$15,000	\$15,000	IEEE	10/18 – 09/19	Optical Sensor	Structural Health
PI	\$64,560	\$64,560	LANL	07/19 – 03/20	Optical Sensor	Structural Health
PI	\$120,950	\$54,427	DOE	07/19 – 12/20	Optical Sensor	Structural Health
Co-PI	\$311,473	\$139,264	DOE	07/19 – 12/20	Optical Sensor	Harsh Environment
Co-PI	\$516,000	\$103,200	NSF	09/19 – 08/22	Optical Sensor	Structural Health
PI	\$75,145	\$22,544	LANL	03/19 – 10/21	Optical Sensor	Structural Health
PI	\$2,462,302	\$1,969,841	ARL/LWI	12/18 – 09/20	Optical Sensor	Medical Health
Co-PI	\$242,172	\$79,916	AFOSR	07/20 – 06/21	Optical Sensor	Harsh Environment
Co-PI	\$2,303,893	\$921,557	DOE	07/20 – 06/23	Optical Sensor	Harsh Environment
PI	\$200,000	\$150,000	NSF	06/20 – 05/21	RF Sensor	Medical Health
PI	\$363,091	\$363,091	NIH	09/20 – 08/21	RF Sensor	Medical Health
PI	\$712,849	\$570,279	NIH	01/21 – 01/23	RF Sensor	Medical Health
Co-PI	\$7,489,095	\$2,246,729	DOE	03/21 – 02/24	Optical Sensor	Harsh Environment
Co-PI	\$445,664	\$178,266	DLA	08/21 – 08/23	Optical Sensor	Harsh Environment
PI	\$500,000	\$500,000	ARO	09/21 – 08/23	Optical Sensor	Harsh Environment
Co-PI	\$486,435	\$194,574	DLA	11/22 – 10/25	Optical Sensor	Harsh Environment
Co-PI	\$1,500,000	\$600,000	DARPA	02/23 – 08/27	RF Sensor	Structural Health
Co-PI	\$757,487	\$378,743	DLA	11/23 – 10/26	Optical Sensor	Harsh Environment
Co-PI	\$605,118	\$302,559	NSF	09/23 – 06/26	Optical Sensor	Structural Health
Co-PI	\$1,200,000	\$600,000	DOE	10/23 – 11/25	Optical Sensor	Structural Health
Co-PI	\$12,400,000	\$1,240,000	DOE	09/23 – 08/28	Optical Sensor	Harsh Environment
Co-PI	\$2,850,000	\$142,500	DOT	09/23 – 08/28	RF Sensor	Structural Health
PI	\$880,000	\$440,000	DOE	06/24 – 05/27	Optical Sensor	Harsh Environment
Co-PI	\$750,000	\$375,000	DOE	06/24 – 05/27	Optical Sensor	Structural Health
PI	\$270,000	\$270,000	ARO	07/24 – 06/27	RF Sensor	Harsh Environment
PI	\$516,139	\$258,069	DOE	06/24 – 05/26	RF Sensor	Harsh Environment

Co-PI	\$480,370	\$110,485	AM	10/23 – 09/25	Optical Sensor	Harsh Environment
Total External Research Funds: \$41M Huang's Share: \$14.1M						

PUBLICATIONS

BOOK CHAPTERS

1. C. Zhu, R.E. Gerald II, and J. Huang*. (2022). Micromachined Optical Fiber Sensors for Biomedical Applications. In: Ossandon, M.R., Baker, H., Rasooly, A. (eds) Biomedical Engineering Technologies. Methods in Molecular Biology, vol 2393. Humana, New York, NY.
https://doi.org/10.1007/978-1-0716-1803-5_20

JOURNAL PAPERS (* Corresponding author and the student of the PI as the major contributor)

2025

1. Dinani, Homayoon Soleimani, Tatianna Reinbolt, Bohong Zhang, Ganggang Zhao, Rex E. Gerald 2nd, Zheng Yan, and Jie Huang*. "Miniaturized Wearable Biosensors for Continuous Health Monitoring Fabricated Using the Femtosecond Laser-Induced Graphene Surface and Encapsulated Traces and Electrodes." **ACS sensors**. (2025) <https://doi.org/10.1021/acssensors.4c02214>
2. Dey, Koustav, Ogbole Collins Inalegwu, Laura Bartlett, Ruimin Jie, Rex E. Gerald, Chen Zhu, and Jie Huang*. "High-density fiber Bragg grating array enabling fully distributed sensing with b-millimeter spatial resolution." **Optics Letters** 51, no. 1 (2025): 117-120.
<https://doi.org/10.1364/OL.581015>
3. Li, Shiyu, Ruimin Jie, Osamah Alsalman, Jie Huang, and Chen Zhu. "Large-Range and High-Sensitivity Displacement Sensing Based on Extrinsic Fabry-Perot Interferometer Assisted Microwave Photonic Filter." **IEEE Transactions on Instrumentation and Measurement** (2025).
<https://doi.org/10.1109/TIM.2025.3568100>
4. Yang, Ji, Qi Dong, Chunyan Zhang, Wentao Zhang, Joel Miscall, Alexandra H. Brozena, Jiansong Chen et al. "Selective electrified polyethylene upcycling by pore-modulated pyrolysis." **Nature Chemical Engineering** 2, no. 7 (2025): 424-435. <https://doi.org/10.1038/s44286-025-00270-2>
5. Wang, Xizheng, Ning Liu, Zhennan Huang, Ji Yang, Gang Chen, Boyang Li, Ti Xie, Sean Overa et al. "Electrified vapor deposition at ultrahigh temperature and atmospheric pressure for nanomaterials synthesis." **Nature Synthesis** pp.1-13 (2025). <https://doi.org/10.1038/s44160-025-00914-4>
6. Prakash Hungund, Abhishek, Bohong Zhang, Narasimman Subramaniam, Thomas Spudich, Ryan O'Malley, Farhan Mumtaz, Rex E. Gerald, and Jie Huang*. "Pendant Micro-droplet Evaporation Fabricates Fiber-optic MOF Gas Sensor in Seconds." **ACS sensors** 10, no. 9 (2025): 6564-6579.
<https://doi.org/10.1021/acssensors.5c00982>
7. Zhu, Chen, Ruimin Jie, Chenxi Huang, and Jie Huang*. "Microwave Photonics-Based Multiplexing for Fiber-Optic Interferometric Sensing." **IEEE Transactions on Microwave Theory And Techniques** (2025). <https://doi.org/10.1109/TMTT.2025.3620329>
8. Mumtaz, Farhan, Hanok Tekle, Bohong Zhang, Xiaodong Li, Sunday Abraham, Bryant Mathis, Jeffrey D. Smith, Ronald J. O'Malley, and Jie Huang*. "Distributed Sapphire Fiber Bragg Gratings Based Thermal Profiling of Submerged Entry Nozzles." **IEEE Transactions on Instrumentation and Measurement** vol. 74, pp. 1-12 (2025). <https://doi.org/10.1109/TIM.2025.3593567>
9. Jie, Ruimin, Zhaopeng Zhang, Chen Zhu, and Jie Huang*. "Integrating optical and radiofrequency interferometry for enhanced phase sensing." **Advanced Photonics Nexus** 5, no. 1 (2026): 016006-016006. <https://doi.org/10.1117/1.APN.5.1.016006>

10. Dey, Koustav, Ogbole Collins Inalegwu, Chen Zhu, Rex E. Gerald II, and Jie Huang*. "Core-cladding parallel FBG with enhanced SNR via direct femtosecond laser inscription." *Optics & Laser Technology* 192 (2025): 114019. <https://doi.org/10.1016/j.optlastec.2025.114019>
11. Li, Shiyu, Ruimin Jie, Osamah Alsalman, Jie Huang*, and Chen Zhu. "Tilted Fiber Bragg Grating Sensors Based on Time-Domain Measurements with Microwave Photonics." *Journal of Lightwave Technology* (2025). <https://doi.org/10.1109/JLT.2024.3456551>
12. Jie, Ruimin, Jie Huang*, and Chen Zhu. "Transforming optical Vernier effect into coherent microwave interference towards highly sensitive optical fiber sensing." *Photonics Research* 13, no. 4 (2025): 875-888. <https://doi.org/10.1364/PRJ.542584>
13. Zhu, Chen, Ruimin Jie, Chenxi Huang, Huaijun Guan, and Jie Huang*. "Multiplexable tilted fiber Bragg grating sensors based on dispersive microwave-photon frequency domain reflectometry." *Photonics Research* 13, no. 12 (2025): 3453-3465. <https://doi.org/10.1364/PRJ.572491>
14. Zhang, Bohong, Hanok Tekle, Ronald J. O'Malley, Jeffrey D. Smith, Farhan Mumtaz, and Jie Huang*. "In situ high-temperature Raman spectroscopy for online EAF slag analysis." *Journal of Materials Research and Technology* vol. 38, pp. 2865-2874 (2025). <https://doi.org/10.1016/j.jmrt.2025.08.132>
15. Zhu, Chen, Rex E. Gerald, and Jie Huang*. "Phase-Variation Microwave Resonator for Highly Sensitive Dynamic Sensing." *IEEE Transactions on Microwave Theory and Techniques* (2025). <https://doi.org/10.1109/TMTT.2025.3541981>
16. Mumtaz, Farhan, Bohong Zhang, Koustav Dey, Jeffrey D. Smith, Ronald J. O'Malley, and Jie Huang*. "Discrimination of Temperature and Strain by Characterizing Two Femtosecond Laser-Written Coincident Sapphire Fiber Bragg Gratings for Harsh Environment Applications." *IEEE Transactions on Instrumentation and Measurement* (2025). <https://doi.org/10.1109/TIM.2025.3548203>
17. Jie, Ruimin, Jie Huang, and Chen Zhu. "Microwave Photonics-Assisted Interrogation of Fiber-Optic Interferometric Sensors with Joint Frequency-Time Domain Analysis." *Journal of Lightwave Technology* (2025). <https://doi.org/10.1109/JLT.2025.3538812>
18. Zhang, Bohong, Anand K. Nambisan, Abhishek Prakash Hungund, Xavier Jones, Qingbo Yang, and Jie Huang*. "Stochastic generalization models learn to comprehensively detect volatile organic compounds associated with foodborne pathogens via Raman spectroscopy." *RSC Advances* 15, no. 7 (2025): 4847-4860. <https://doi.org/10.1039/D4RA08316D>
19. Volaity, Sayee Srikarah, Bryan K. Aylas-Paredes, Taihao Han, Jie Huang, Seetharaman Sridhar, Gaurav Sant, Aditya Kumar, and Narayanan Neithalath. "Towards decarbonization of cement industry: a critical review of electrification technologies for sustainable cement production." *npj Materials Sustainability* 3, no. 1 (2025): 23. <https://doi.org/10.1038/s44296-025-00068-6>
20. Valiev, Saidanvar Esanjonovich, Anthony C. Okafor, Abhishek Prakash Hungund, and Jie Huang. "Frequency domain transmitometry for corrosion damage detection and evaluation of the effect of corrosion on reflected signals in aircraft data transmission lines." *Measurement* 251 (2025): 117189. <https://doi.org/10.1016/j.measurement.2025.117189>
21. Inalegwu, Ogbole Collins, Rony Kumer Saha, Yeshwanth Reddy Mekala, Farhan Mumtaz, Nicholas Dionise, Zane Voss, Jeffrey D. Smith, Ronald J. O'Malley, Rex E. Gerald, and Jie Huang*. "Advancing Temperature Monitoring of the Bottom Anode in a Direct Current Electric Arc Furnace Operations with Distributed Optical Fiber Sensors." *IEEE Transactions on Instrumentation and Measurement* (2025). <https://doi.org/10.1109/TIM.2025.3583377>
22. Inalegwu, Ogbole Collins, Muhammad Roman, Farhan Mumtaz, Bohong Zhang, Anand Nambisan, and Jie Huang*. "Machine learning-assisted optical fiber specklegram sensor for early and spatially

- distributed water leak detection and localization." *Optical Engineering* 64, no. 5 (2025): 056103-056103. <https://doi.org/10.1117/1.OE.64.5.056103>
23. Aylas-Paredes, Bryan K., Taihao Han, Advait Neithalath, Jie Huang, Ashutosh Goel, Aditya Kumar, and Narayanan Neithalath. "Data driven design of ultra high performance concrete prospects and application." *Scientific reports* 15, no. 1 (2025): 9248. <https://doi.org/10.1038/s41598-025-94484-2>
24. Tang, Fujian, Baihe Qu, Hong-Nan Li, and Jie Huang. "Simultaneous measurement of early-stage corrosion and strain levels in steel rebar based on graphene oxide-coated NCF-FBG fiber optic sensor." *IEEE Transactions on Instrumentation and Measurement* (2025). <https://doi.org/10.1109/TIM.2025.3551462>
25. Zhang, Bohong, Gao Deng, Hongyan Ma, and Jie Huang*. "Magnesium sulfate attack of alite paste and mitigation by surface carbonation: Monitoring and comparison using novel portable fiber-optic Raman probe." *Construction and Building Materials* 493 (2025): 143259. <https://doi.org/10.1016/j.conbuildmat.2025.143259>
26. Zhu, Chen, Ruimin Jie, Chenxi Huang, and Jie Huang*. "Enhancing Fiber Optic Interferometric Sensing With Microwave Photonics-Based Dispersion Fourier Transform and Integrated Magnitude–Phase Analysis." *IEEE Transactions on Microwave Theory and Techniques* (2025). <https://doi.org/10.1109/TMTT.2025.3590265>
- 2024**
27. Li, Shiyu, Osamah Als Salman, Jie Huang, and Chen Zhu. "In-Plane and Out-of-Plane 2-D Microdisplacement Sensor Based on a Single Microwave Resonator with Machine Learning." *IEEE Transactions on Microwave Theory and Techniques* (2024). <https://doi.org/10.1109/TMTT.2024.3510724>
28. Inalegwu, Ogbole Collins, Rony Kumer Saha, Manoj Kumar Pullagura, Todd Pearson Sander, Koustav Dey, Jeff Smith, Ronald O'Malley, Rex Gerald, and Jie Huang*. "Distributed Sensing for Early Detection of Water Leakages in the Burner Area of an Electric Arc Furnace Using Optical Fiber Sensors." *IEEE Transactions on Instrumentation and Measurement* (2024). <https://doi.org/10.1109/TIM.2024.3460948>
29. Zhu, Chen, Osamah Als Salman, and Jie Huang*. "Highly Sensitive Liquid-Level Sensing Based on Microwave Frequency Domain Reflectometry and Interferometry." *IEEE Transactions on Instrumentation and Measurement* (2024). <https://doi.org/10.1109/TIM.2024.3470021>
30. Zhang, Zhaopeng, Wei Peng, Osamah Als Salman, Lingmei Ma, Jie Huang, and Chen Zhu. "Optical frequency domain reflectometry-based high-performance distributed sensing empowered by a data and physics-driven neural network." *Optics Express* 32, no. 14 (2024): 25074-25090. <https://doi.org/10.1364/OE.514466>
31. Jie, Ruimin, Hongkun Zheng, Osamah Als Salman, Jie Huang*, and Chen Zhu*. "High-Sensitivity Fabry-Perot Interferometric Sensor Based on Microwave Photonics with Phase Demodulation." *Journal of Lightwave Technology* (2024). <https://doi.org/10.1109/JLT.2024.3409536>
32. Zhu, Chen, Osamah Als Salman, and Jie Huang. "Prompt, Accurate and Non-contact Material Identification Using A Single Microwave Sensor With Machine Learning Analysis." *IEEE Transactions on Instrumentation and Measurement* (2024). <https://doi.org/10.1109/TIM.2024.3398114>
33. Valiev, Saidanvar, Anthony C. Okafor, Abhishek Prakash Hungund, and Jie Huang. "Identification of damage and corrosion effect in aging aircraft data transmission lines." *Engineering Failure Analysis* 157 (2024): 107887. <https://doi.org/10.1016/j.engfailanal.2023.107887>

34. Tang, Yan, Yizheng Chen, Qi Zhang, Biyao Shi, and Jie Huang*. "Enhanced Sensitivity and Robustness in an Embeddable Strain Sensor Using Microwave Resonators." *IEEE Transactions on Instrumentation and Measurement* (2024) <https://doi.org/10.1109/TIM.2024.3380608>
35. Zhang, Bohong, Farhan Mumtaz, Muhammad Roman, Dinesh Reddy Alla, Rex E. Gerald II, and Jie Huang*. "Miniaturized fluorescence pH sensor with assembly free ball lens on a tapered multimode optical fiber." *Optics Express* 32, no. 3 (2024): 4228-4241. <https://doi.org/10.1364/OE.511190>
36. Zhu, Chen, Osamah Als Salman, and Jie Huang*. "Cascaded Weak Reflector Coaxial Cable Structure for Point and Distributed Large-Strain Sensing." *IEEE Sensors Journal* (2024). <https://doi.org/10.1109/JSEN.2024.3357137>
37. Naku, Wassana, Osamah Als Salman, Jie Huang, and Chen Zhu. "Segmented Fiber Optic Sensors Based on Hybrid Microwave-Photonic Interrogation." *Journal of Lightwave Technology* (2024). <https://doi.org/10.1109/JLT.2024.3360233>
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16. B. Zhang, H. Tekle, R. J. O'Malley, T. Sander, J. D. Smith, L. Bartlett, R. E. Gerald II, & J. Huang*, "Fiber-Optic Raman Probe for On-line EAF Slag Analysis", *AISTech 2023 (May 2023, Detroit, MI)*. DOI: 10.33313/387/069
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20. B. Zhang, M. A. Rahman, J. Liu, Q. Yang, & J. Huang*, "A Remote Fiber Optic Raman Sensor for Rapid and Nondestructive Foodborne Pathogen Detection", *Proceedings of the SPIE Defense + Commercial Sensing 2023 (May 2023, Orlando, FL)*, pp. [12532-29]. (Poster presentation)
21. B. Zhang, F. Mumtaz, M. Roman, D. R. Alla, & J. Huang*, "Development of A Fluorescent-Based Miniaturized Fiber Optic pH Sensor", *Proceedings of the SPIE Defense + Commercial Sensing 2023 (May 2023, Orlando, FL)*, pp. [12532-33]. (Poster presentation)

22. R. O'Malley, B. Zhang, F. Mumtaz, T. Spudich, R. E. Gerald II, & J. Huang*, "Modifiable Porous Silica Microsphere Optical Sensor for Chemical Detection", *Proceedings of the SPIE Defense + Commercial Sensing 2023 (May 2023, Orlando, FL)*, pp. [12532-27]. (Presenter)
23. M. Roman, D. Balogun, L. Bartlett, R. J. O'Malley, R. E. Gerald, and J. Huang*, "Optical Fiber Sensors Embedded in a Metal Casting Mold" Optical Fiber Sensors (OFS 2022), Alexandria, Virginia, Aug-Sep 2022.
24. W. Naku, C.Zhu, A. K. Nambisan, M. Roman, R. E. Gerald II, and J. Huang*, "Machine learning identifies liquids employing a simple fiber-optic tip sensor" Optical Fiber Sensors (OFS 2022), Alexandria, Virginia, Aug-Sep 2022.
25. W. Naku, C.Zhu, and J. Huang*, "Fiber-Optic Extrinsic Fabry-Perot Interferometer Inspired Microwave Device: A Novel Ultra-Sensitive Sensing Platform" Optical Fiber Sensors (OFS 2022), Alexandria, Virginia, Aug-Sep 2022.
26. D. Alla and J. Huang*, "Cascaded Sapphire Fiber Bragg Gratings for Molten Steel Analysis" *Proceedings of the SPIE Defense + Commercial Sensing 2022 (2022, Orlando, FL)*, pp. [12105-20].
27. B. Zhang, H. Tekle, L. Bartlett, R. J. O'Malley, and J. Huang*. "High-temperature fiber-optic Raman sensor for steel manufacturing" *Proceedings of the SPIE Defense + Commercial Sensing 2022 (2022, Orlando, FL)*, pp. [12105-22].
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29. M. Roman and J. Huang, "Applications of Fiber Optic Sensors in Ceramic Industry," 56th Annual Symposium on Refractories, March 2021, St. Louis, MO.
30. Balogun, Damilola, Muhammad Roman, Laura Bartlett, Ronald J. O'Malley, Rex E. Gerald, and J. Huang. "A Fiber-Optic-Distributed Temperature Mapping Technique to Characterize Shell Solidification in Peritectic-Grade Steels." *AISTech - Iron and Steel Technology Conference Proceedings (2021, Nashville, TN)*, pp. 471-479, Association for Iron & Steel Technology (AIST), Jul 2021.
31. M. Roman, D. Balogun, R. E. Gerald II, L. Bartlett, J. Huang, and R. J. O'Malley, "Peritectic Behavior Detection in the Fe-C-Mn-Al-Si Steel System using Fiber Optic Temperature Mapping," *Proceedings of the AISTech 2020 (2020, Cleveland, OH)*, pp. 822-833, Association for Iron & Steel Technology (AIST), Sep 2020.
32. D. Balogun, M. Roman, R. E. Gerald II, L. Bartlett, J. Huang, and R. J. O'Malley, "A Fiber Optic Distributed Temperature Mapping Technique to Characterize Shell Solidification in Peritectic Grade Steels," *Proceedings of the AISTech 2021 (2021, Nashville, TN)*, pp. 471-479, Association for Iron & Steel Technology (AIST), June 2020.
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34. C. Zhu and J. Huang, "Smart Fiber-optic Inclinometer." *Conference on Lasers and Electro-Optics (CLEO)*, web conference, May 2020.
35. J. Liu, I. Jasim, C. Zhu, M. Roman, E. Kinzel, J. Huang, and M. Almasri. "Microsphere Photolithography Patterning of Plasmonic Sensors on Optical Fiber." In *2019 IEEE Research and Applications of Photonics in Defense Conference (RAPID)*, pp. 1-2. IEEE, 2019.

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37. J.E. Johnson, N. Capps, C. Zhu, J.H. Hsu, J. Goldstein, R. Brow, J. Huang, D. Bristow, R. Landers, and E.C. Kinzel. "Direct write of photonics using a filament-fed laser-heated process." In *Laser 3D Manufacturing VI*, vol. 10909, p. 109090Q. International Society for Optics and Photonics, 2019.
38. C. Zhu and J. Huang, "Truly distributed coaxial cable sensing based on random inhomogeneities." Paper No. 11000-23 SPIE Defense + Commercial Sensing, April 2019
39. C. Zhu and J. Huang, "Displacement and strain measurement up to 1000 °C using a hollow coaxial cable Fabry-Perot resonator." Paper No. 11000-22 SPIE Defense + Commercial Sensing, April 2019
40. C. Zhu and J. Huang, "Optical fiber Fabry-Perot interferometer based embeddable strain sensor with 30 nano-strain resolution." Paper No. 11000-10 SPIE Defense + Commercial Sensing, April 2019
41. C. Zhu and J. Huang, "A miniaturized optical fiber tip high-temperature sensor based on concave-shaped Fabry-Perot cavity." Paper No. 10982-119 SPIE Defense + Commercial Sensing, April 2019
42. J. Liu, I. Jasim, M. Roman, Y. Yang, C. Qu, J. Huang, E. Kinzel, and M. Almasri. "Functional Plasmonic Fiber-Optic Based Sensors Using Low-Cost Microsphere Photolithography." In *2019 20th International Conference on Solid-State Sensors, Actuators and Microsystems & Eurosensors XXXIII (TRANSDUCERS & EUROSENSORS XXXIII)*, pp. 1545-1548. IEEE, 2019.
43. I. Jasim, J. Liu, Y. Yang, C. Qu, C. Zhu, M. Roman, J. Huang, E.C. Kinzel, and M. Almasri "Low-cost fabrication of Functional plasmonic fiber-optic based sensors using microsphere photolithography." Paper No. 11000-12 SPIE Defense + Commercial Sensing, April 2019
44. M. Parker, L. Albrecht, M. Huang, Jie Huang, R. Gerald II, K. Woelk, "Low-Cost Solution for Optically Induced NMR Hyperpolarization." 51st Southeastern Undergrad Research Conference, University of Tennessee, Martin, Feb 2019.
45. W. Naku, M. Parker, M. Roman, R. Gerald II, and J. Huang, "Micro-scale FP Interferometer for Liquid-Liquid Extraction Experiments." 51st Southeastern Undergrad Research Conference, University of Tennessee, Martin, Feb 2019.
46. M. Huang, M. Parker, K. Woelk, Jie Huang, and R. Gerald II, "Simple Laser System for Hyperpolarized NMR Experiments." 51st Southeastern Undergrad Research Conference, University of Tennessee, Martin, Feb 2019.
47. J. Huang, "Compact and robust optical Fabry-Perot interferometers for structural health monitoring", Paper No.10654-16 SPIE Defense + Commercial Sensing Apr. 2018
48. L. Chi, M. Huang, A. Pfaff, R.E. Gerald II, J. Huang, and K. Woelk, "NMR hardware and pulse sequences with CapPack™ devices" 59th Experimental Nuclear Magnetic Resonance Conference April 29 - May 4, 2018 Orlando, FL
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50. R.E. Gerald II, J. Huang, K. Woelk, M. Huang, L. Chi, W. Stoecker, and S. Cartwright, "Acupuncture-MRI Cancer Probe" 59th Experimental Nuclear Magnetic Resonance Conference April 29 - May 4, 2018 Orlando, FL

51. S. Jothibas and J. Huang, "Spatially continuous strain monitoring of carbon fiber composites using embedded distributed fiber optic sensors" Paper No. 10598-17 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
52. Y. Zhuang and J. Huang, "A pendulum based optical fiber inclinometer with nanoradian resolution" Paper No.10598-86 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
53. C. Zhu and J. Huang, "A three-dimensional sliding and debonding sensor based on triaxial optical fiber Fabry-Perot interferometers Paper No. 10598-122 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
54. C. Zhu and J. Huang, "An optical fiber extrinsic Fabry-Perot interferometer based displacement sensor with centimeter measurement range" Paper No.10598-131 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
55. C. Zhu and J. Huang, "Wide-range displacement sensor based on a hollow coaxial cable Fabry-Perot resonator" Paper No.10598-136 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
56. C. Zhu and J. Huang, "Buckled beam based optical interferometric pressure sensor with low temperature cross-sensitivity" Paper No.10598-137 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
57. Y. Zhuang and J. Huang, "Frequency domain fiber loop ring-down system for liquid refractive index sensing" Paper No. 10598-144 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
58. Y. Zhuang and J. Huang, "A high resolution extrinsic Fabry-Perot interferometer-based two-dimensional optical fiber inclinometer" Paper No.10598-145 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
59. Y. Zhuang and J. Huang, "A novel high temperature sensor based on a hollow coaxial cable Fabry-Perot resonator" Paper No. 10598-146 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
60. Y. Du and J. Huang, "A mechanical designed EFPI using buckling beam mechanism for strain sensing Paper No. 10598-147 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
61. A. Ghazanfari, W. Li, M. Leu, Y. Zhuang, and J. Huang. "Freeform extrusion fabrication of advanced ceramic components with embedded sapphire optical fiber sensors." ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), 2016. **(Best student paper award)**
62. Y. Song, L.Yuan, L. Hua, Q. Zhang, J. Lei, J. Huang, and H. Xiao. "Ferrofluid-based optical fiber magnetic field sensor fabricated by femtosecond laser irradiation." In SPIE OPTO, pp. 97501U-97501U. International Society for Optics and Photonics, 2016.
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65. J. Liu, L. Yuan, J. Huang, and H. Xiao. "A cantilever based optical fiber acoustic sensor fabricated by femtosecond laser micromachining." In SPIE LASE, pp. 973804-973804. International Society for Optics and Photonics, 2016.J. Huang, L. Hua, L. Yuan, "Optical fiber based microwave-photonic interferometric sensors," SPIE Proceedings, Photonics West, 13–18 Feb. 2016, San Francisco, California, USA.

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69. L. Yuan, X. Lan, J. Huang, H. Xiao, “Femtosecond Laser Processing of Glass Materials for Assembly-Free Fabrication of Photonic Microsensors”, Advances in Science and Technology, 2014.
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72. L. Yuan, X. Lan, J. Huang, H. Xiao, “Femtosecond laser processing of glass materials for assembly-free fabrication of photonic microsensors”, International conferences on modern materials & technology, Montecatini, Italy, 2014.
73. L. Chi, J. Huang, M. Huang, R E. Gerald II, K. Woelk, “Two CapPack Devices for Solution and Solid State NMR Applications,” 55th Experimental Nuclear Magnetic Resonance Conference, March 23rd – 28th, 2014, Boston, Massachusetts, USA.
74. L. Chi, K. Woelk, R E. Gerald II, R J. Klingler, P. Novak, A R. Pfaff, M. Huang, J. Huang, E T. Satterfield and A. Mollhagen, “Cap-Pack Devices for Quantitative NMR/MRI Investigation,” 2013 Chicago Area Discussion Group, November 9th, 2013, TCS Conference Center, Argonne National Lab, Chicago, Illinois, USA.
75. J. Huang, L. Hua, X. Lan, H. Xiao, “Fiber optic distributed sensing technology based on microwave reconstructed optical interferograms,” (Post-deadline Session Presentation) OSA Frontiers in Optics, Orlando, FL, Oct. 2013.
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79. H. Wang, J. Huang, X. Lan, L. Yuan, H. Xiao, “Widely tunable fiber ring laser based on two cascaded long period fiber gratings with a core-mode blocker,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
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81. J. Huang, X. Lan, H. Wang, L. Yuan, H. Xiao, “Polymer optical fiber for sensing application based on multimode interference,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.

82. X. Lan, J. Huang, H. Wang, H. Xiao, "Fabrication and applications of visible light long-period fiber grating," Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
83. Z. Gao, X. Lan, J. Huang, H. Xiao, "Surface modified-ZSM-5 zeolite-coated long period fiber grating for ammonia detection in water," Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
84. T. Wei, J. Huang, X. Lan, Q. Han, H. Xiao, "Optical fiber sensor interrogation improved by active fiber loop," (Invited Presentation) SPIE Defense, Security and Sensing, Maryland, MD, Apr. 2012.
85. S. Wu, T. Wei, J. Huang, H. Xiao, J. Fan, "A study on Q-factor of CCBG sensors by coupled mode theory," SPIE Smart structures/NDE, San Diego, CA, Mar. 2012.
86. J. Huang, T. Wei, X. Lan, J. Fan, H. Xiao, "Coaxial cable Bragg grating sensors for large strain measurement with high accuracy", SPIE Smart structures/NDE, San Diego, CA, Mar. 2012.
87. X. Lan, Q. Han, J. Huang, X. Fang, T. Wei, Z. Gao, H. Xiao, "High order mode long-period fiber grating refractive index sensor based on intensity measurement," Proceeding of SPIE, Photonics West, San Francisco, CA, Jan. 2012.
88. X. Lan, J. Huang, Q. Han, Z. Gao, T. Wei, H. Xiao, "Fs laser fabricated D-shape fiber for surface enhanced Raman scattering substrate," OSA Fiber Lasers and Applications, San Diego, CA, Jan. 2012
89. X. Lan, J. Huang, Z. Gao, T. Wei, Q. Han, H. Xiao, "Hydrogen sensor based on palladium coated SMS fiber structure," OSA Laser Applications to Chemical, Security and Environmental Analysis, San Diego, CA, Jan. 2012
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91. J. Huang, X. Lan, T. Wei, Q. Han, Z. Gao, H. Xiao, "Zeolite thin film-coated fiber sensor for measuring chemical trace based on multimode interferometer," OSA Advantages in Optical Materials, San Diego, CA, Jan. 2012.
92. J. Huang, T. Wei, X. Lan, Y. Zhang, S. Wu, J. Fan, H. Xiao, "Coaxial cable Bragg grating sensors for large strain measurement," Proceeding of 57th Int'l Instrumentation Symposium, 20-24 June 2011, St. Louis, MO, USA.
93. Y. Zhang, E. Pienkowski, T. Wei, J. Huang, H. Xiao, "Concentrically symmetric hollow core interferometer for common path optical coherence tomography," Proceeding of 57th Int'l Instrumentation Symposium, 20-24 June 2011, St. Louis, MO, USA

PATENTS

1. "Electrified Optical Fiber and PVC Pipe with Integrated Sensor"

- Inventors: Jie Huang, Rex E. Gerald II, Abhishek Hungund, Bohong Zhang, Homayoon Dinani. A novel sensor system integrating optical fiber and PVC for advanced sensing applications. Invention disclosure submitted in May 2023.

2. "In-Situ High Temperature Raman Spectroscopy via Remote Fiber Optic Raman Probe"

- Inventors: Jie Huang, Ronald O'Malley, Bohong Zhang, Hanok Tekle. A groundbreaking Raman probe enabling in-situ chemical analysis in high-temperature environments. U.S. Provisional Patent Application filed in May 2023 63/447594.
- **06/2024: Heraeus Electro-Nite** signed a license agreement with a pre-paid Exclusivity Fee of \$200,000 to Missouri S&T and inventors.

3. **"Open-ended hollow coaxial cable resonator sensor"**
 - Inventors: Jie Huang, Chen Zhu, II Rex E. Gerald. Innovative resonator sensor offering enhanced sensitivity and robustness for various applications. U.S. Patent 11,740,171, issued in 2023.
4. **"Methods and Apparatuses for Identifying Transmission Lines Via Impedance Inhomogeneity Patterns"**
 - Inventors: Tao Wei, Jie Huang. This patent introduces a method for identifying transmission lines via unique impedance patterns. US Patent 11,474,141, issued in 2022.
5. **"Real-time overhead power line sag monitoring"**
 - Inventors: Jie Huang, Rui Bo. An advanced system for real-time monitoring of power line sag, enhancing grid reliability and safety. U.S. Patent 11,150,083, issued in 2021.
6. **"Novel Chemical Detector Based on Phase-Interrogated Ultra-sensitive Microwave Resonance"**
 - Inventors: Chen Zhu, Rex Gerald, Jie Huang. A chemical detection technology utilizing microwave resonance for ultra-sensitive analysis. U.S. Patent Application 62/993,277 submitted in September 2021.
7. **"Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities"**
 - Inventors: Chen Zhu, Jie Huang. A novel distributed sensing system based on coaxial cable inhomogeneities. U.S. Patent Application # 62/797,850 submitted in May 2021.
8. **"In Situ NMR Parameter Monitoring Systems and Methods for Measuring PH and Temperature"**
 - Inventors: Lingyu Chi, Ming Huang, II Rex E. Gerald, Jie Huang, Annalise R. Pfaff, Klaus Woelk. A system for in-situ NMR monitoring of pH and temperature, enhancing analytical capabilities. U.S. Patent 10,295,487 issued in May 2019.
9. **"Tri-Axial Toroid Cavity Detector Magnetic Resonance Imaging Probe and Methods of Use"**
 - Inventors: R. Gerald II, K. Woelk, Jie Huang. An MRI probe with a tri-axial toroid cavity detector, enhancing imaging capabilities. Invention disclosure filed in May 2017.
10. **"Optical carrier based microwave interferometric system and method"**
 - Inventors: H. Xiao, Jie Huang, X. Lan. A microwave interferometric system utilizing optical carriers for advanced sensing applications. US Patent 9,658,171 issued in May 2017.
11. **"Distributed microwave Fabry-Perot interferometers device and method for sensing applications"**
 - Inventors: H. Xiao, Jie Huang, X. Lan, M. Luo. A distributed microwave Fabry-Perot interferometer device, offering enhanced sensing capabilities. US Patent 9,534,937 issued in May 2017.

INVITED TALKS AND LECTURES

1. 2024 – "Navigating Extremes: Pioneering Sensor Technologies in Harsh Environments and Beyond", The University of North Carolina at Chapel Hill, NC
2. 2023 - "Compact Hydrogen and CO2 Sensors," Air Liquide, New York City.
3. 2023 - "A Novel Breath Analyzer Probe for the Real-Time Survey of Healthy and Compromised Lung Function Through Breath Matter Content," NIH RADx-RAD Seminar.

4. 2023 - "Harsh Environment Sensors from Lightwave Technology Lab," University of Maryland.
5. 2022 - "Advanced Sensors Enable New Frontiers in Basic & Applied Research," NextGen Seminar, University of Missouri, Columbia, MO.
6. 2022 - "Harsh Environment Sensors from Lightwave Technology Lab," University of California San Diego, San Diego, CA.
7. 2021 - "Fiber-Optic Sensors for the Steelmaking Industry," with M. Roman, Center for Infrastructure Engineering Studies (CIES), Missouri S&T.
8. 2020 - "Fundamental Understanding of Acute Traumatic Brain Injuries through Large-Scale Data Acquisition of Impact Events from Optical Fiber Sensor Equipped Smart Helmets Processed using Machine Learning," AENC Virtual Concussion Conclave.
9. 2019 - "Fiber optic sensors for industrial applications," IEEE St. Louis section Keynote Speech, St. Louis.
10. 2019 - "Fiber Optics in Helmets," AENC 2019 Concussion Conclave, Waynesville medical plaza, MO.
11. 2018 - "Mild Traumatic Brain Injury Monitoring through Hair-like Pressure-Sensor-equipped Smart Helmets," AENC 2018 Concussion Conclave, Waynesville medical plaza, MO.
12. 2018 - "Fiber-optic Electric Field Sensing," with M. Roman, Research on Tap lecture series, Graduate Student Leadership Council, CASB, Missouri S&T, Rolla Public House.
13. 2017 - "Optical and microwave interferometric sensors for civil engineering applications," Missouri Department of Transportation.
14. 2017 - "Optical fiber sensors in Steel-making industry," Nucor Castrip.
15. 2016 - "Optical fiber chemical sensors," Department of Chemistry, University of South Florida.
16. 2016 - "Fiber Optic Based Sensor Developments," PSMRC industry meeting, Matt's Steakhouse.
17. 2016 - "Read optical interferometers in microwave domain," Department of Material Science and Engineering, Missouri S&T.

PROFESSIONAL SERVICES

JOURNAL EDITORS

- Sensors: Associate Editor
- Sensors: Special issue editor: Fiber optic sensors
- Photonics: Associate Editor
- IEEE Transactions on Instrumentation and Measurement: Topical Editor

AD-HOC REVIEWER FOR JOURNALS

- Nature Photonics
- Nature Communications
- Science Advances
- Optica
- Optics Letters

- Optics Express
- Optical Material Express
- Photonics Technology Letters
- Journal of the Optical Society of America A
- Journal of the Optical Society of America B
- Applied Optics
- Sensors and Actuators A: Physical
- Sensors and Actuators B: Chemical
- Review of Scientific Instrument
- Measurement Science and Technology
- Materials Science and Engineering: C
- Optical Engineering
- Sensors
- Journal of Physics D: Applied Physics
- Applied Physics Letters
- Applied Physics Express
- IEEE Sensors Journal
- IEEE Transactions on Instrumentation and Measurement
- IEEE Transactions on microwave theory and techniques
- IEEE Transactions on Electromagnetic Compatibility

PROPOSAL REVIEW

- University of Missouri Research Board: (2015)
- NSF Graduate Fellowship panelist (2016)
- NSF ECCS panel (2018)
- DOD SMART Scholarship Panel Review (2018)
- USDOT University Transportation Center for Region 8 (2018)
- NIH U01 Review panel (2020)
- NSF STTR/SBIR review panel (2020)
- NIH U01 Review panel (2021)

CONFERENCE CHAIRS AND PROGRAM COMMITTEE

- **Associate Technical Program Chair:** Instrumentation and Measurement in Medical, Biomedical and Healthcare Systems, IEEE I2MTC – International Instrumentation and Measurement Technology Conference, May 22 – 25, 2023
- **Program Committee:** “Optical Waveguide and Laser Sensors II”, SPIE Defense + Commercial Sensing (DCS) Conference, Orlando, Florida, United States, April 30 - May 4, 2023

- **Program Committee:** “Optical Waveguide and Laser Sensors II”, SPIE Defense + Commercial Sensing (DCS) Conference, Orlando, Florida, United States, April 3 – 7, 2022
- **Program Committee:** “Optical Waveguide and Laser Sensors II”, SPIE Defense + Commercial Sensing (DCS) Conference, Orlando, Florida, United States, April 12 – 16, 2021
- **International Scientific Committee:** 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis 2019
- **Session Chair:** fiber optic sensors session, 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis 2019
- **Invited Panelist:** Pathways to Academia Session, IEEE-HKN Experience Virtual Conference, 8 October - 7 November 2020.

INSTITUTIONAL SERVICES

DEPARTMENT LEVEL

- **Search Chair:** ECE NTT Assistant Research Professor Search Committee 2018
- **Committee member:** ECE Assistant Professor Search Committee 2019
- **Search Chair:** ECE NTT Research Professor Search Committee 2019
- **Committee member:** ECE Postdoctoral Researcher Search Committee 2019
- **Search Chair:** ECE NTT Assistant Research Professor Search Committee 2020
- **Committee member:** ECE Schlumberger Endowed Professor Search Committee 2022

CAMPUS LEVEL

- Advisor: Engineering Freshmen Advising Program at Missouri S&T (2015-present)
- IEEE Optics Emphasis Workshop for MS&T IEEE Student Branch (April 2016, October 2016, January 2017)
- Annual ISC Poster Presentation judge (2015-2016, 2016-2017, 2017-2018, 2018-2019)
- The Chancellor's Kummer Institute (\$300 million donation) Faculty Advisory Panel (2020-present)
- Missouri S&T CEC Emerging Research Committee (2020-present)
- Search Committee member: Distinguished Professor and Founding Director of the Kummer Institute Center for Advanced Manufacturing

PROFESSIONAL MEMBERSHIPS

- Member, Optical Society of America (OSA)
- Senior Member, Institute of Electrical and Electronic Engineers (IEEE)
- Member, Society of Photo-Optical Instrument Engineers (SPIE)
- Member, IEEE Instrumentation and Measurement Society (IEEE-IMS)
- Member, American Society for Nondestructive Testing (ASNT)
- Member, Omicron Delta Kappa (ODK), the National Leadership Honor Society
- Invited Member, Phi Kappa Phi, the National Leadership Honor Society

- Member, Missouri S&T HKN chapter
- Invited Member, Sigma Xi

ADVISEES

NTT RESEARCH PROFESSOR (3 CURRENT)

- Dr. Rex E. Gerald II (NTT Research Professor)
- Dr. Farhan Mumtaz (NTT Assistant Research Professor)
- Dr. Bohong Zhang (NTT Assistant Research Professor)
- Dr. Chen Zhu (NTT Associate Research Professor)

VISITING PROFESSOR (1 CURRENT)

- Dr. Thomas Spudich at Maryville University

POST-DOC (2 CURRENT)

- Dr. Koustav Dey
- Dr. Narasimman Subramaniam

RESEARCH AIDE (2 CURRENT)

- Ryan O'Malley
- Kelsey Vancil

PH.D. STUDENTS (10 CURRENT)

- Ogbole Collins Inalegwu
- Homayoon Soleimani
- Ruimin Jie
- Sara McDaniel
- Meisam Vajdi
- Babak Moeinimaleki
- Tao Liu (Co-advised with Dr. Ming C. Leu)
- Saidanvardzhon Valiev (Co-advised with Dr. Anthony Okafor)
- Robert Abbott (Co-advised with Dr. Xiong Zhang)

M.S. STUDENTS (3 CURRENT)

- Peter Holtmann
- Tatianna Reinbolt
- Rony Kumer Saha

UNDERGRADUATE STUDENTS 14 CURRENT)

- Timothy Kellermann
- Benedetta Matthews
- Griffin Buschjost
- Sara McDaniel
- Kevin Yn
- Dibbya Barua
- Jiaqi Chen (Summer Intern)
- Hui Ji (Summer Intern)
- Jasser Estrada
- Jared Floyd (Summer Intern)
- Chanadda Subdee (OURE)
- Matthew J. Kaufman (Summer intern)
- Julia White (OURE) <https://news.mst.edu/2018/03/missouri-st-undergraduates-to-exhibit-research-to-state-legislators-3/>
- Makeda W. Beyene (OURE)

TEMPORARY TECHNICAL (5 CURRENT)

- Christina Woelk
- Arik Trotnic
- Matthew Parker
- Trevor Brown
- Alex Strength

PH.D. DISSERTATION COMMITTEE

- Xiang Gao, "Using Wireless Sensors and Networks program for Chemical Particle Propagation Mapping and Chemical Source Localization." 2016
- Shanshan Bi, "Data Analytics for Stochastic Control and Prognostics in Cyber-physical Systems." 2016
- Yizheng Chen, "Long-period Fiber Grating Corrosion Sensors for Life-cycle monitoring and Assessment of Reinforced Concrete Structures." 2016
- Wenbin Li, "Freeform Extrusion Fabrication of Advanced Ceramics and Ceramic-Based Composites." 2018
- Zahra Manzoor, "Design and Prototyping of a Real-Time Millimeter Wave Imaging System." 2019
- Chuanrui Guo, "Long Period Fiber Grating, Thin Coating of Graphene and Silver Nanowires, and Corrosion Sensing for Life-Cycle Assessment of Steel Structures" 2019

- Mahboobeh Mahmoodi, “Frequency Selective Surface-Based Sensing: Theory and Applications.” 2020
- Vishal G Saravade, “Investigation of Wide Bandgap Semiconductors for Room Temperature Spintronic, and Photovoltaic Applications.” 2020
- Hamad A. Alharkan, “Adaptive Dynamic Programming Methods for Tracking Current Control of Switched Reluctance Motor Drive.” 2021

SENIOR DESIGN PROJECT ADVISOR

- William Castillo, Nicholas Fouche, and Alex Porter. “Miniature Radar Assembly.” 2016
- Joshua Breedlove, Darian Neal, Girma Tulu, and Ephrem Belihu. “Wireless Charging Table.” 2018
- Darrin Cornelison, Scott England, Jose Hernandez, Riley Maersch, and Evan Miller. “Automatic Gas Shutoff.” 2019
- David Wester, Han Diep, Sam Short, Levi Vieth, and Andrew Wanamaker. “Project chicken.” 2020

FORMER ADVISEES

NTT RESEARCH PROFESSOR

- Dr. Qingbo Yang, 2018-2020 (Placement: Assistant professor at Lincoln University of Missouri)
- Dr. Chen Zhu, 2020-2021 (Placement: PI at Zhejiang Lab)

POST-DOC

- Dr. Yang Du, 2016-2017 (Placement: Scientist at Leibniz Institute of Photonic Technology)
- Dr. Farhan Mumtaz, 2021-2022 (Placement: Research assistant professor at Missouri S&T)
- Dr. Muhammad Roman, 2020-2021 (Placement: R&D scientist at ASML)
- Dr. Bohong Zhang, 2022-2023 (Placement: Research assistant professor at Missouri S&T)

THESIS PH.D. STUDENTS

- Chen Zhu (Placement: Assistant Research Professor at Missouri S&T)
 - Ph.D. Dissertation: Fiber-optic and Coaxial-cable Extrinsic Fabry-Perot Interferometers for Sensing (2016-2021)
- Yiyang Zhuang (Placement: Assistant Professor at Zhejiang University)
 - Ph.D. Dissertation: Fiber Optic Sensors for Industry and Military Applications (2015-2021)
- Muhammad Roman (Placement: Post-doc at Missouri S&T)
 - Ph.D. Dissertation: Distributed Fiber-Optic Temperature Sensors for Applications in the Steel Industry (2017-2021)
- Bohong Zhang (Placement: Post-doc at Missouri S&T)
 - Ph.D. Dissertation: In situ High Temperature Fiber-Optic Raman Sensor for Industrial Applications (2017-2022)

- Jing Guo (Placement: Post-doc at Clemson University)
 - Ph.D. Dissertation: Novel Sensor Platforms based on Fabry-Perot Resonators for Applications in Environmental Geophysics (2017-2022)
- Wassana Naku (Placement: Associate Professor at University of Phayao)
 - Ph.D. Dissertation: Fiber Optic Sensors for Liquid Identifications (2017-2022)
- Taihao Han (Placement: Research Assistant Professor at Missouri S&T, co-advised by Dr. Aditya Kumar)
 - Ph.D. Dissertation: Development and application of ensemble machine learning algorithms to enable a priori, high-fidelity, and prompt predictions and optimizations of complex materials and systems (2017-2022)
- Dinesh Alla (Placement: Scientist at ASML Holding)
 - Ph.D. Dissertation: Fiber Bragg grating sensors for steel industry applications (2019-2023)
- Nahideh Salehifar
 - Ph.D. Dissertation: Metal Organic Thin Film Coated on Optical Fibers (2022-2025)
- Ogbol Collins Inalegwu (Placement: Intel)
 - Ph.D. Dissertation: Advanced Optical Fiber Sensor Technologies for Enhanced Monitoring and Safety in Electric Arc Furnaces (2021-2025)

THESIS M.S. STUDENTS

- Xiaotong Tang
 - Thesis: Coaxial cable ring resonator based on pair sided coaxial cable Bragg grating coupler for sensing application (2017-2019)
- Yiyang Zhuang (Placement: Ph.D. candidate at Missouri S&T)
 - Thesis: Embedded Fiber Optic Sensors For Temperature Monitoring Of Continuous Casting Mold (2015-2017)
- Mohammed Farhan Ahmed (Placement: Ansys HFSS, Boulder, CO)
 - Thesis: Development of Hollow Coaxial Cable Fabry-Perot Resonator for High-Temperature Sensing Applications (2015-2017)
- Sasi Jothibas (Placement: ZF TRW Automotive, Livonia, MI)
 - Thesis: Distributed fiber optic sensors for monitoring strain and refractive index using optical frequency domain reflectometry (2015-2017)
- Bohong Zhang (Placement: Ph.D. candidate at Missouri S&T)
 - Thesis: A Simple Background Elimination Method for Miniaturized Fiber-Optic Raman Probes (2018-2021)
- Ogbol Collins Inalegwu (Placement: Ph.D. candidate at Missouri S&T)
 - Thesis: A Compact Wavelength Meter using a Multimode Fiber (2018-2021)
- Peter Holtmann (Placement: Sandia National Lab)
 - Thesis: Open-ended Hollow Coaxial Cable Resonance Sensing via Permittivity Fluctuations for Applications to Exhaled Breath Health Monitoring (2020-2022)
- Abhishek Prakash Hungund (Placement: Qualcomm)

- Thesis: Low Finesse Extrinsic Fabry-Perot Interferometer (EFPI) Demodulation for High Temperature Gap Measurements (2021-2023)
- Tatianna Reinbolt
 - Thesis: Miniaturized Wearable Biosensors, For Continuous Health Monitoring, Fabricated using Femtosecond Laser-Induced Graphene, With Surface and Encapsulated Traces/Electrodes (2022-2024)
- Rony Kumer Saha (Placement: PhD at Missouri S&T)
 - Thesis: Rayleigh Scattering-based Fiber Optic Sensors for Detecting Water Leaks and Monitoring Structural Integrity in High-Temperature Metallurgical Furnaces (2022-2024)