

Shimin Tang, Ph.D.

Post-Doctoral Research Associate

P.O. Box 2008,
Building 8600, MS6454
Oak Ridge, TN, 37831

Phone: 816-694-4505
Email: tangs@ornl.gov
Website: <https://www.ornl.gov/staff-profile/shimin-tang>

Education

- | | | |
|-----------|---------------|--|
| July 2021 | Ph.D. | <i>University of Missouri-Kansas City, Kansas City, MO, USA</i>
Electrical and Computer Engineering
Advisor: Dr. Zhiqiang Chen |
| Dec. 2015 | M. Sc. | <i>the University of Manchester, Manchester, UK</i>
Electric and Electricity Engineering
Advisor: David H Foster |
| July 2014 | B.S. | <i>Beijing Union University, Beijing, China</i> |

Professional Experiences

- | | |
|--------------------------|--|
| Oct. 2021-
Present | Postdoctoral Research Associate , <i>Oak Ridge National Laboratory, Oak Ridge, TN, USA</i>
Mentored by instrument scientists and software scientists, I am greatly involved in the project: Intelligent Acquisition and Reconstruction for Hyperspectral Tomography. This aims to help the experiments at VENUS in the future. <ul style="list-style-type: none">○ Applied the Artificial-Intelligent (AI) techniques in quality evaluation of the reconstruction from the hyperspectral neutron imaging.○ Developed a sample-adaptive projection selection method for neutron scanning. The result has been published at the ICASSP conference.○ Helped the development of the AI-driven autonomous hyperspectral neutron computing tomography system (HyperCT)○ For the first time, demonstrated the autonomous neutron imaging experiment at SNS. The results show that the AI-driven HyperCT system can reduce up to 40% experiment time (Nyquist frequency based). |
| July 2019-
Jan. 2020 | Research Intern , <i>ZOLOZ, Kansas City, MO, USA</i>
Worked on the development of Webcam gaze tracking project. <ul style="list-style-type: none">○ Face recognition by Dlib, head pose estimation by landmark projection and gaze tracking by physical model○ Data collection and labeling; Experiment design and application |
| Jan. 2015 –
Dec. 2017 | Graduate Research Assistant , <i>University of Missouri-Kansas City, Kansas City, MO</i> <ul style="list-style-type: none">○ Led multiple interdisciplinary research projects: Hyperspectral 4D modelling, deep learning of structural anomaly and 3D data, and Post-Disaster Scene Image Understanding.○ Created an infrastructure damage dataset (i.e. Concrete damage, pavement damage) |

Publications

ORCID: 0000-0002-9220-3707

2023

- Yang, Diyu, **Shimin Tang**, Singanallur V Venkatakrishnan, Mohammad SN Chowdhury, Yuxuan Zhang, Hassina Z Bilheux, Gregory T Buzzard, and Charles A Bouman. "An Edge Alignment-Based Orientation Selection Method for Neutron Tomography". *ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*: IEEE, 2023.
- Chowdhury, Mohammad Samin Nur, Diyu Yang, Shimin Tang, Singanallur V Venkatakrishnan, Hassina Z Bilheux, Gregory T Buzzard, and Charles A Bouman. "Autonomous Polycrystalline Material Decomposition for Hyperspectral Neutron Tomography." *arXiv preprint arXiv:2302.13921* (2023).

2022

- Zhang, Chi, Hao Jiang, Weihuang Liu, Junyi Li, **Shiming Tang**, Mario Juhas, and Yang Zhang. "Correction of out-of-Focus Microscopic Images by Deep Learning." *Computational and Structural Biotechnology Journal* 20 (2022): 1957-66.

2021

- Jiang, Hao, **Shiming Tang**, Weihuang Liu, and Yang Zhang. "Deep Learning for Covid-19 Chest Ct (Computed Tomography) Image Analysis: A Lesson from Lung Cancer." *Computational and Structural Biotechnology Journal* 19 (2021): 1391-99.
- **Tang, Shimin**. "Disaster and Infrastructure Scene Understanding." University of Missouri-Kansas City, 2021.
- **Tang, Shimin**, and Zhiqiang Chen. "Understanding Natural Disaster Scenes from Mobile Images Using Deep Learning." *Applied Sciences* 11, no. 9 (2021): 3952.
- **Tang, Shimin**, Zhiqiang Chen, and Molan Zhang. *Spectral Quality Evaluation of Reconstructed Hyperspectral Images*. 2021 11th Workshop on Hyperspectral Imaging and Signal Processing: Evolution in Remote Sensing (WHISPERS): IEEE, 2021.
- Aryal, Sameer, ZhiQiang Chen, and **Shimin Tang**. "Mobile Hyperspectral Imaging for Material Surface Damage Detection." *Journal of Computing in Civil Engineering* 35, no. 1 (2021): 04020057.

2020

- **Tang, Shimin**, and ZhiQiang Chen. "Scale-Space Data Augmentation for Deep Transfer Learning of Crack Damage from Small Sized Datasets." *Journal of Nondestructive Evaluation* 39 (2020): 1-18.

2019

- Klerings, Alina, **Shiming Tang**, and ZhiQiang Chen. *Structuralizing Disaster-Scene Data through Auto-Captioning*. Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Advances on Resilient and Intelligent Cities, 2019.

2017

- CHEN, ZHIQIANG, and **SHIMIN TANG**. "Level-of-Detail Assessment of Structural Surface Damage Using Spatially Sequential Stereo Images and Deep Learning Methods." *Structural Health Monitoring* 2017, no. shm (2017).

Presentations

Oral

- **Shimin Tang**, Diyu Yang, Mohammad Samin Nur Chowdhury, Singanallur Venkatakrishnan, Charles A. Bouman, Gregory T Buzzard, Hassina Z. Bilheux, Jean-Christophe Bilheux, George J. Nelson, Maria Cekanova, and Ray Gregory. "Artificial Intelligence-driven Hyperspectral Neutron Computed Tomography (HSnCT) Systems." *Electronic Imaging 2023 - Computational Imaging XXI*.
- **Shimin Tang**, and Hassina Z. Bilheux. "HyperCT: Hyperspectral Neutron Computed Tomography." *Joint DOE / NIH Workshop - Advancing Medical Care through Discovery in the Physical Sciences Workshop Series: Radiation Detection, 2023*
- **Shimin Tang**, Sameer Aryal, Zhiqiang Chen, and John Keven. "UAV-Hyperspectral-Image Based Pavement Condition Assessment via Machine Learning Method." *1st Data Science for Pavements Symposium 2022*

Poster

- **Shimin Tang**, Mohammad Samin Nur Chowdhury, Diyu Yang, Singanallur Venkatakrishnan, Charles A. Bouman, Gregory T Buzzard, and Hassina Z. Bilheux. "Real-Time Control and Feedback of Hyperspectral Neutron Computed Tomography at the Spallation Neutron Source." *American Conference of Neutron Scattering (ACNS) 2022*.
- **Shimin Tang**, S.V. Venkatakrishnan, Jean Bilheux, Ray Gregory, Mohammad Samin Nur Chowdhury, Diyu Yang, Greg Buzzard, Charles Bouman and Hassina Bilheux. "Real-time Machine Learning Evaluation Algorithms for Hyperspectral Neutron Computed Tomography (HSnCT) at the Spallation Neutron Source." *the 9th International Topical Meeting on Neutron Radiography (ITMNR-9), 2023*
- **Shimin Tang**, and Zhiqiang Chen. "Disaster-Scene Mechanics Understanding Using Deep Learning." *Project of Missouri EPSCoR and NSF, Missouri Transect 2018*