

4/1/2024-9/30/2024

Publications

1. Mirzaei, M., Radmehr, A., Holton, C., and Ahmadian, M., In-Motion, Non-Contact Detection of Ties and Ballasts on Railroad Tracks, *Applied Science*, September 2024, Vol. 14, Issue 19, pp. 8804 – 8823. <https://doi.org/10.3390/app14198804> (Virginia Tech)
2. Kasch, J. and Ahmadian, M., Design and Operational Assessment of a Railroad Track Robot for Railcar Undercarriage Condition Inspection, *Designs*, July 2024, Vol. 8, Issue 4, pp. 70 – 100. <https://doi.org/10.3390/designs8040070> (Virginia Tech)
3. Kumar, N., Radmehr, A., Ahmadian, M., Experimental Evaluation of Effect of Leaves on Railroad Tracks in Loss of Braking, *Machines*, April 2024, Vol. 12, pp. 301 – 318. <https://doi.org/10.3390/machines12050301> (Virginia Tech)
4. Chen, Y., Mirzaei, M., Holton, C., Ahmadian, M., Development of An Optical Sensing System for the Detection of Lubricity Conditions on the Rail Gage Face, *International Journal of Rail Transportation*, February 2024. (<https://doi.org/10.1080/23248378.2024.2309618>) (Virginia Tech)
5. Chen, Y., Chatterjee, R., Ahmadian, M., Electromagnetic Energy Harvester Tie: Design, Implementation, and Field Testing, the AREMA 2024 Annual Conference and Exposition, Louisville, KY, September 15 – 18, 2024. (Virginia Tech)
6. Kumar, N., Radmehr, A., Ahmadian, M., Assessment of contact patch on curving forces in two-point contact condition, the AREMA 2024 Annual Conference and Exposition, Louisville, KY, September 15 – 18, 2024. (Virginia Tech)
7. Ahmadian, M., Chen, Y., and Pan, Y., Laboratory and Field Evaluation of an Energy Harvesting Tie for Energy Generation on Railroad Tracks, *Railways 2024*, Prague, Czech Republic, September 1 – 5, 2024. (Virginia Tech)
8. Mohammed, O., Palese, J., Zarembski, A., Development of a 3D track quality index incorporating machine learning techniques and a multivariable normal distribution” to be submitted to a peer-reviewed professional journal, September 2024. (University of Delaware)
9. Ahmed, M., Palese, J., Zarembski, A., Predicting Track Geometry Using Machine-Learning Methods, to be submitted to a peer-reviewed professional journal, September 2024 (University of Delaware)
10. Palese, J., Zarembski, A., A Stochastic Approach to Rail Wear Rate Assessment and Forecasting Using Mixture Density Networks, to be submitted to a peer-reviewed professional journal, September 2024 (University of Delaware)
11. Mohammad, A.A., Wang, Z. Teng, H., Mechanical and Metallurgical Assessment of a Submerged Arc Welded Surfaced Rai, accepted by *International Journal of Transportation Science and Technology*, October 2024 (UNLV)
12. Mohammad, A.A., Wang, Z. Teng, H., Finite Element Modeling and Validation of Submerged Arc Welding for Repairing 136re Heavy Rails, Part F: *Journal of Rail and Rapid Transit*, January 2024. (UNLV)
13. Mohammad, A.A., Wang, Z., Teng, H., Finite Element Modeling and Validation of Submerged Arc Welding for Repairing 136re Heavy Rails, *Proceeding of International Conference on Transportation and Development 2024*, June 13, 2024, Atlanta, George, United States. (UNLV)

14. Jia, L. Park, J.W., Zhu, M., Jiang, Y. Teng, H., Evaluation of On-Vehicle Acoustic Emission Detection for Rail Defects, submitted to the Journal of Transportation Technologies, September 2024 (UNLV)
15. Fan, J., Zhu, M., Jiang, Y., Teng, H., Development of a Platform to Enable Real Time, Non-disruptive Testing and Early Fault Detection of Critical High Voltage Transformers and Switchgears in High Speed-rail, submitted to International Journal of Transportation Science and Technology, September 2024 (UNLV)
16. Qiu, L., Zhu, M. Park, J.M., Jiang, Y., Teng, H., Non-Interrupting Rail Track Geometry Measurement System Using UAV and LiDA, submitted to International Journal of Transportation Science and Technology, September 2024 (UNLV)

Books or other non-periodical, one-time publications

Lei Jia, Non-Contact Acoustic Emission Approach for Rail Health Monitoring, Dissertation of Civil and Environmental Engineering, University of Nevada Las Vegas, Fall 2024 (UNLV)

Other publications, conference papers and presentations

1. Chen, Y., Chatterjee, R., Ahmadian, M., Electromagnetic Energy Harvester Tie: Design, Implementation, and Field Testing, the AREMA 2024 Annual Conference and Exposition, Louisville, KY, September 15 – 18, 2024. (Virginia Tech)
2. Kumar, N., Radmehr, A., Ahmadian, M., Assessment of contact patch on curving forces in two-point contact condition, the AREMA 2024 Annual Conference and Exposition, Louisville, KY, September 15 – 18, 2024. (Virginia Tech)
3. Ahmadian, M., Chen, Y., and Pan, Y., Laboratory and Field Evaluation of an Energy Harvesting Tie for Energy Generation on Railroad Tracks, Railways 2024, Prague, Czech Republic, September 1 – 5, 2024. (Virginia Tech)
4. Ahmadian, M., Southward, S., Mantovani, G., Shaju, A., In-motion Detection, Isolation, and Classification of Wheel Cracks using Air-coupled Ultrasonic Acoustic Emission (UAE) Methods, MxV Rail University Day, August 6 – 7, 2024. (Virginia Tech)
5. Mantovani, G., Kumar, N., Ahmadian, M., Virginia Tech-Federal Railroad Administration Roller Rig Measurement Capabilities and Efforts to Improve its Capabilities, 2024 Pacific Southwest Region 9 UTC Annual Congress, Las Vegas, NV, March 11 – 12, 2024. (Virginia Tech)
6. Kumar, N., Mantovani, G., Radmehr, A., Ahmadian, M., Experimental Evaluation of Loss of Braking due to Leaves on Railroad Tracks, 2024 Pacific Southwest Region 9 UTC Annual Congress, Las Vegas, NV, March 11 – 12, 2024. (Virginia Tech)
7. Chen., Y., Mirzaei, M., Holton, C., Ahmadian, M., Application of Laser-induced Fluorescence Technique for Measuring Lubricity Conditions on Rail Gage Face, 2024 Pacific Southwest Region 9 UTC Annual Congress, Las Vegas, NV, March 11 – 12, 2024. (Virginia Tech)
8. Mirzaei, M., Radmehr, A., Holton, C., Ahmadian, M., Leveraging Non-contact Doppler LiDAR Sensors and Unsupervised Algorithms for In-motion Assessment of Railroad Track Stability, 2024 Pacific Southwest Region 9 UTC Annual Congress, Las Vegas, NV, March 11 – 12, 2024. (Virginia Tech)
9. Ahmadian, M., Radmehr, A., Mirzaei, S. M. H., Condition Monitoring of Railroad Tracks in Revenue Service using Doppler Lidar Systems, the 8th International Conference on Condition

Monitoring in Non-Stationary Operations (CMMNO 2024), Wenzhou, China, May 10 – 13, 2024. (Virginia Tech)

10. Palese, J. Mohammed, O., Ahmed, M., Using Long-Short-Term-Memory Networks and Mixture-Density Modeling to Predict and Classify Track Geometry at Cyber and Digital Information in Railway Engineering and Operations Workshop, University of Maryland, College Park, MD, March 2024 (University of Delaware)
11. Mohammadi, A.A. Wang, Z. Teng, H., Finite Element Analysis of Submerged Arc Welding Process for Surface Repair of Heavy Rails, Presentations at ASCE International Conference on Transportation and Development, Atlanta, June 17, 2024. (UNLV)