10/01/18 to 3/31/19

Journal publications

1. Yurlov, D., Zarembski, A.M., Attoh-Okine, N., and Palese, J.W., Combinational Hybrid Analysis Approach to the Determination of a Probability Model for Development of Track Geometry Defects as a Function of Ground Penetrating Radar Measurements, accepted by Journal of Transportation Infrastructure Geotechnology, November 2018. (University of Delaware)
2. Lasisi, A. and Attoh-Okine, N., Network-level Infrastructure Management Tool for Rail Defect Prediction and Maintenance: An Ensemble Learning Methodology. 2019 Transportation Research Board Annual Meeting, DC (Accepted for presentation). (University of Delaware)
3. Zarembski, A.M., The Increasing Use of Data Analytics and Big Data in Railroad Maintenance Management, Railway Age, February 2019. (University of Delaware)
4. Lassi, A., Machine Learning: An Alternative to Weibull Defect Analysis of Rail Infrastructure, presented at the 2018 IEEE International Conference on Big Data (Big Data), Seattle WA, December 2018. (University of Delaware)
5. Attoh-Okine, N., keynote address, The Future of Blockchain Technology in Railway Track Engineering, presented in the 2018 Big Data in Railroad Maintenance Conference, Newark DE, December 2018. (University of Delaware)
6. Palese, J., Application of Data Analytics to Rail Wear Forecasting presented in the 2018 Big Data in Railroad Maintenance Conference, Newark DE, December 2018. (University of Delaware)
7. Palese, J.W., Zarembski, A.M., and Ebersole, K., Stochastic Analysis of Transit Wheel Wear and Optimized Forecasting of Wheel Maintenance Requirements, Proceedings of the 2019 Joint Rail Conference, JRC2019, April 9-12, 2019, Snowbird, UTAH, US. (University of Delaware)
8. Lasisi, A., Martey, E., Guilloty, D., and Attoh-Okine, N., Three-step Agglomerated Machine Learning: An alternative to Weibull Defect Analysis of Rail Infrastructure, 2018 IEEE International Conference on Big Data (Big Data), Seattle, WA, December 2018. (University of Delaware)
9. Zarembski, A.M., Yurlov, D., Palese, J.W., and Attoh-Okine, N., Determination of Probability of a Track Geometry Defect based on GPR Measured Subsurface Conditions Using Data Analytics, accepted by 2019 World Congress of Railway Research, October 2019, Tokyo, Japan. (University of Delaware)
10. Li, H., Chen, T., Teng, H., and Jiang, Y., A Graph-Based Reinforcement Learning Method with Converged State Exploration and Exploitation, Computer Modeling in Engineering Sciences, vol. 118, no. 2, pp. 253-274, February 2019, DOI: 10.31614/cmes.2019.05807. (UNLV)
11. Mortazavian, E., Wang, Z., and Teng, H., Thermal-Mechanical Study of 3D Printing Technology for Rapid Rail Repair, Oral presentation at and the proceeding of the ASME 2018 International Mechanical Engineering Congress and Exposition, IMECE 2018, November 9-15, 2018, Pittsburgh, PA. (UNLV)

Poster presentations at Railroad Infrastructure Diagnosis and Prognosis Symposium, Las Vegas, Nevada, October 16 – 17, 2018:

1. Fundamental Study on the Rolling Contact Fatigue (RCF) at the Microstructural Level (Virginia Tech)
2. Advanced Modeling of Railway Ballast for Improving Railroad Tamping Operation (Virginia Tech)
3. Monitoring and Detecting Fouled Ballast Using Forward Looking Infrared Radiometer (FLIR) Technology (Virginia Tech)
4. The Application of Laser Technology for Railroad Top of Rail (TOR) Friction Modifier Detection and Measurements (Virginia Tech)
5. Towards Automated Monitoring of Track Using Machine Learning (Virginia Tech)
6. VT-FRA Roller Rig: Designed and Commissioned to Serve the Railroad Industry (Virginia Tech)
7. Analysis of Wheel Wear & Forecasting of Wheel Life for Transit Rail Operations, (University of Delaware)
8. Mobile 3D Printing of Rail Track Surface for Rapid Repairment (UNLV)
9. Developing Acoustic Technology to Detect Transverse Defects in Rail at High-speed (UNLV)
10. Non-Propriety Ultra High-Performance Concrete for Ballast-Track High-speed Railroad Sleepers (UNLV)
11. UAV Applications to Track Inspection of Irregularity Measurement (UNLV)
12. 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 (UNLV)
13. High-speed Rail Access Charge for the XpressWest of Nevada (UNLV)
14. Corrosion Prevention of the Rail Tie Plate for High-speed Rail Applications (UNLV)

Presentations at the Railroad Infrastructure Diagnosis and Prognosis Symposium, Las Vegas, Nevada, October 16 – 17, 2018:

1. Keynote Lecture: Railroad Track Monitoring Technologies (Virginia Tech)
2. Qualitative Assessment of Rail Lubricity (Virginia Tech)
3. Developing Machine Learning Methods for Facilitated Track Condition Assessment Using Repeated Inspection Data (Virginia Tech)

Journal paper submitted:

1. Alsahli, A., Zarembski, A.M., Palsese, J., and Euston W., Investigation of the Correlation between Track Geometry Defect Occurrence and Wood Tie Condition, submitted to Journal of Transportation Infrastructure Geotechnology, January 2019 (University of Delaware)
2. Mortazavian, E., Wang, Z., and Teng, H., Thermal-kinetic-mechanical Modeling of Laser Powder Deposition Process for Rail Repair, Journal of Manufacturing Science and Engineering, March 2019 (UNLV)

Conference abstracts submitted:

1. Monitoring and Detecting Fouled Ballast using Forward Looking Infrared Radiometer (FLIR) Aerial Technology – Possibilities and Limitations (Virginia Tech)

2. Development of Vertical Force Control System for the Virginia Tech – Federal Railroad Administration Roller Rig (Virginia Tech)
3. Evaluating the Effect of Natural Third Body Layers on Friction Using the Virginia Tech Roller Rig (Virginia Tech)
4. Virginia Tech-Federal Railroad Administration Roller Rig Measurement Capabilities and Baseline Measurements (Virginia Tech)
5. Studying the effect of tangential forces on rolling contact fatigue in rails considering microstructure (Virginia Tech)
6. Automated Monitoring of Track through Historical Data Analysis (Virginia Tech)
7. Rail Defect Detection Technology: A Review of the Past and a Look to the Future, (UNLV)
8. Thermal-kinetic-mechanical Modeling of Laser Powder Deposition Process for Rail Repair (UNLV)