Day 1: Wednesday December 11, 2019

8:30 -10:00  Session I: Welcome and Introduction
   Allan M. Zarembski, Professor, Director, Railroad Research and Safety Program, University of Delaware
   Dennis Assanis, President, University of Delaware (invited)
   Levi Thompson, Dean, College of Engineering, University of Delaware (invited)
   Sue McNeil, Chair, Department of Civil and Environmental Engineering, University of Delaware
   Anne Canby, Director, OneRail and Chairman of the Railroad Advisory Board at University of Delaware

Keynote Speaker

Keynote: Allan M Zarembski, University of Delaware

10:00 to 10:15 - Break

10:15-12:00  Session II: Railroad and FRA Big Data Applications and Needs
   Session Chair: Allan M. Zarembski, University of Delaware
   Milad Hosseinipour, Amtrak
   Michael Messner, Assistant Director of Roadway Planning, BNSF
   Antonio Merheb, MRS Logistica, Brazil
   Jay Baillargeon, Program Manager, FRA, “Update on FRA’s Predictive Analytics Research”
   Tim Stark, University of Illinois at Urbana-Champaign, Hugh Thompson, FRA, S “Track Geometry Defects Using Site-Specific Fouled Ballast Monitoring

12:00 to 1:15 - Lunch

1:15-3:00  Session IIIA: Big Data Applications and Case Studies: Railway Infrastructure Asset Management
   Session Chair: Joe Palese
   Krzysztof Wilczek, Head of Track Analytics, Plasser & Theurer, “Use cases of big data technology in track Maintenance”
   Lariza Stewart, GREX,
   Andrew Smith and Robert Henderson, Bentley
   Erland Tegelberg, Strukton Rail, “Effective Asset Management and Exciting New Big Data Sources”
   ENSCO

3:00 to 3:15 - Break

3:15 -5:00  Session IIIB: Big Data: Applications and Case Studies: Rolling Stock Asset Management
Session Chairman: Anne Canby

Cathy Herb, Director of Central Services and Ana-Maria Giuglea, Sr Manager, Advanced Analytics & Data Solutions, RailInc,

Nenad Mifatovic, Senior Data Scientist, Alstom, “Challenges and Solutions for Log Analytics in Transportation”

Trefor Williams, Professor, Rutgers University, and John Betak, Collaborative Solutions LLC, “Using LDA Topic Modelling to Identify Themes in British and American Railroad Accidents

Collins Aerospace

5:00  Day 1 sessions end
6:30 – 8:00  Cocktail Reception:
   Atrium, STAR Campus, University of Delaware

Day 2: Thursday, December 12, 2019
8:00  Introduction to Day Two: Nii Attoh-Okine, University of Delaware

8:15- 10:15  Session IIIC: Applications and Case Studies:
   Session Chairman: Nii Attoh-Okine; University of Delaware
   John Schmid, Parsons Transportation Group and Peer Vanderzee Lifespan, “Don’t Replace
   Joseph Palese, “Application of Data Analytics to Rail Wear Forecasting”, Senior Scientist, University of Delaware
   Qing He, SUNY Buffalo
   David Zavetz, Software Systems Architect, Alstom, “Big Data at the Wayside”

10:15 – 10:30 Break

10:30- 12:00  Session IV: Big Data Analysis Theory and Techniques
   Session Chairman: Qing He, SUNY Buffalo
   Mehdhi Ahmadian, Virginia Tech
   Xiang Liu, Assistant Professor, Rutgers University
   Hai Huang, Penn State Altoona

12:00 Concluding Remarks
   Allan M. Zarembski, Professor, Director, Railroad Research and Safety Program, University of Delaware
   Anne Canby, Chairman of the Railroad Advisory Board at University of Delaware

1:00 PM  Program Ends
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Modern Railways are making increasing use of new generation track inspection and operating technology to obtain more and more data on the condition of the track and equipment. This extensive amount of data, which includes data of increasing complexity as well as volume, has led to a condition known as “Big Data”, where the volume of data is such that traditional analysis techniques are no longer viable to efficiently make use of all of this large volume of data. Thus, important information is often buried in this “mountain” of data. Since railways need to convert this data into useable information to help them plan their capital maintenance programs, there is a need for the application of new and improved analysis techniques to make this conversion from data into information. One such area of improved data analysis is the use of “Big Data” statistical analysis techniques.

The 2019 conference is intended to expand on previous years’ conferences and introduce these new and emerging analysis techniques and to show how they can be applied to the large volume of inspection data collected by railways to improve their planning of the critical capital and maintenance programs. This year’s conference focuses on the railway’s specific needs and practical applications to date of “Big Data” analytics to include both infrastructure and rolling stock maintenance planning.