Guide to RailTEC Student, Faculty and Staff Presentations at TRB

Washington, D.C.
9-13 January 2022

RailTEC is proud to be represented throughout the Rail Section of the 2022 TRB Program. Below is a count of our presence in different aspects of the program.

31 Authors
- 24 U of I RailTEC
- 7 RailTEC Alumni

2 Session Chairs
- 2 U of I RailTEC

14 Committee Members
- 6 U of I RailTEC
- 8 RailTEC Alumni

4 Committee Meeting Chairs
- 2 U of I RailTEC
- 2 RailTEC Alumni

1 TRB Emeritus Member

RAILTEC
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Schedule of Rail Presentations & Posters by RailTEC Faculty & Students

Railway Asset Management and the State of Good Repair
Sunday 1:30 PM- 4:30 PM
Workshop 1034

Riley Edwards, University of Illinois, presiding

New Advances in the Sensing of Track and Rail Behavior and Condition
Monday 8:00 AM- 9:30 AM
Lectern Session 1052

Arthur Lima, University of Illinois, presiding
Riley Edwards, University of Illinois, presiding

Track health monitoring and change detection using 3D laser track scanning
Riley Edwards, Arthur Lima, & Ian Germoglio Barbosa, University of Illinois
Richard Fox-Ivey, Pavemetrics Systems Inc.

Computer Vision for Depth Profile Evaluation of In-service Ballast
Erol Tutumluer, University of Illinois

Innovations in Freight Rail Transportation
Monday 10:30 AM- 12:00 PM
Poster Session 1109

Comparing the Efficiency and Effectiveness of Different Train Following Control Algorithms for Fleets of Heavy Haul Freight Trains under Moving Blocks
Geordie Roscoe & Tyler Dick, University of Illinois

A General Model of the Effect of Hazardous Materials Car Placement in Trains and Their Probability of Derailment
Chen-Yu Lin, Xinhao Liu, Jaemin Kim, & Christopher Barkan, University of Illinois

Quantitative Derailment Rate Comparison of Unit Trains at Transload Terminals and Manifest Trains at Railroad Switching and Hump Classification Yards
Jiaxi Zhao & Tyler Dick, University of Illinois

Innovations in Rail Rolling Stock and Motive Power
Tuesday 8:00 AM- 9:30 AM
Poster Session 1237

Derailment Simulation Analysis of the Relationship Between Railroad Tank Car Structural Modeling, Physical Testing, and the Probability of Damage and Release
Steven Kirkpatrick, Applied Research Associates Inc
Todd Treichel, Association of American Railroads (AAR)
Christopher Barkan, Chen-Yu Lin, Leandro Iannacone, Paul Gharzouzi, & Paolo Gardoni, University of Illinois

Current Research in Railroad Infrastructure Design and Maintenance

Tuesday 8:00 AM- 9:30 AM

Poster Session 1238

Riley Edwards, University of Illinois, presiding

An Investigation into Upward Tie Movements at Railroad Bridge Approaches in Time and Frequency Domains

Huseyin Boler & Erol Tutumluer, University of Illinois
Debakanta Mishra, Oklahoma State University
Theodore Sussmann, OST-R/Volpe Center

Ballast Fouling Condition Evaluation using Deep Learning-based Automated Image Segmentation: Algorithm Development and Field Application

Jiayi Luo, Haohang Huang, Issam Qamhia, Erol Tutumluer, & John Hart, University of Illinois
Hugh Thompson, Federal Railroad Administration (FRA)
Theodore Sussmann, OST-R/Volpe Center

Effect of Ballast Degradation on Track Dynamic Behavior using Discrete Element Modeling

Zhongyi Liu, Bin Feng, & Erol Tutumluer, University of Illinois

Current Research in Railroad Safety

Tuesday 8:00 AM- 9:30 AM

Poster Session 1240

International Benchmarking of Railroad Safety Data System and Performance – A Case Study of Six Cross-Continent Countries

Chen-Yu Lin, Theodore Gerstein, & Christopher Barkan, University of Illinois
Anson Jack, Marcelo Blumenfeld, & Usman Abdurrahman, University of Birmingham

The Future of Highway-Rail Grade Crossing Safety: Analysis of Crashes, Data, and Human Factors

Tuesday 1:30 PM- 3:00 PM

Lectern Session 1299

Quantifying the Reduction in Accidents at Railroad Grade Crossings Due to Connected and Autonomous Vehicles: A Machine Learning Approach

Jacob Mathew & Rahim Benekohal, University of Illinois

TRB Rail Committee Emeritus Members

Christopher Barkan | AR000 Rail Group

TRB Rail Executive Committee Members

Christopher Barkan | Riley Edwards

Schedule of Rail Committee Meetings with RailTEC Presiding

State Rail Transportation Programs, AR040(2), Joint Subcommittee of AR040, AR010, AR030
Tuesday 8:00 AM- 9:30 AM
Sean Pengelly, Lake State Railway, presiding

Rail Capacity, AR040(1), Joint Subcommittee of AR040, AR010, AR030, AP065, AT010
Tuesday 10:30 AM- 12:00 PM
Tyler Dick, University of Illinois, presiding

Railroad Infrastructure Design and Maint. Committee (AR050)
Tuesday 1:30 PM- 3:00 PM
Riley Edwards, University of Illinois, presiding

RailTEC Faculty, Staff, Students and Alumni extend our sincerest thanks to the people, partners and organizations supporting rail transportation engineering research and education at Urbana-Champaign.

We are deeply grateful and appreciate the opportunity to work with you!