Guide to RailTEC Student, Faculty, Staff and Alumni Presentations at TRB

A Virtual Event
January 2021

RailTEC is proud to be represented throughout the 2021 TRB Program. Below is a count of our presence in different aspects of the program.

36 Authors

25 Illinois RailTEC

11 RailTEC Alumni

5 Session Chairs

4 Illinois RailTEC

1 RailTEC Alumni

15 Committee Members

5 Illinois RailTEC

10 RailTEC Alumni

5 Committee Meeting Chairs

2 Illinois RailTEC

3 RailTEC Alumni

2 TRB Emeritus Members

RAILTEC
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Schedule of RailTEC Presentations and Posters

Innovation in Track Monitoring and Measurement Technology

Thursday, January 21 10:00 AM–1:00 PM ET | Workshop 1012

Hamed Kashani, HyGround / Loram Maintenance of Way, presiding
John Edwards, University of Illinois, Urbana-Champaign, presiding
Theodore Sussmann, OST-R/Volpe Center, presiding

Quantification of the Effect of Train Type on Concrete Sleeper Ballast Pressure using a Support Condition Back-Calculator
John Edwards, University of Illinois, Urbana-Champaign

Track Maintenance and Design: Historical Perspective for Future Success

Tuesday, January 26 10:00 AM–11:30 AM ET | Lectern Session 1152

David Staplin, HNTB Corporation, presiding
Conrad Ruppert, University of Illinois, Urbana-Champaign, presiding
John Edwards, University of Illinois, Urbana-Champaign, presiding
Theodore Sussmann, OST-R/Volpe Center, presiding

Workforce Development Life Cycle: Meeting the Needs of the Transportation Workforce Poster Session

Tuesday, January 26 11:30 AM–1:00 PM ET | Poster Session 1174

Survey of Influences on Student Pathways to Railway Transportation Education and Careers
Leonel Evans, University of Illinois, Urbana-Champaign
Tyler Dick, University of Illinois, Urbana-Champaign

Emerging Technologies in Railroad Equipment

Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1453

Fault Diagnosis for Rolling Bearings of a Freight Train Under Limited Fault Data: A Few-shot Learning Method
Chenzhong Li, Southwest Jiaotong University
Ping Wang, Southwest Jiaotong University
Jiebo Li, China Academy of Railway Sciences
Haichuan Tang, CRRC
Kanghua Yang, Southwest Jiaotong University
Qing He, University at Buffalo, SUNY

Current Research in Railroad Operating Technologies

Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1454
Tyler Dick, University of Illinois, Urbana-Champaign, presiding

Development of a Simplified Derailment Model for Investigations of Derailment Severity
Steven Kirkpatrick, Applied Research Associates Inc
Tyler Dick, University of Illinois, Urbana-Champaign
Xiang Liu, Rutgers University

Effects of Hazmat Train Speed Restrictions on Train Delay Performance and Railroad Line Capacity: Comparative Study with Two Railway Simulation Tools

Matthew Parkes, University of Illinois, Urbana-Champaign
Tyler Dick, University of Illinois, Urbana-Champaign
Adrian Diaz de Rivera, University of Illinois, Urbana-Champaign

Current Trends in Freight Rail Transportation Research

Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1455

Quantifying Recent Trends in Class 1 Freight Railroad Train Length and Weight by Train Type

Tyler Dick, University of Illinois, Urbana-Champaign
Jiaxi Zhao, University of Illinois, Urbana-Champaign
Xiang Liu, Rutgers University
Steven Kirkpatrick, Applied Research Associates Inc

Quantifying the Influence of Schedule Coordination in Railway Hump Classification Yards with AnyLogic Simulation

Jiaxi Zhao, University of Illinois, Urbana-Champaign
Geordie Roscoe, University of Illinois, Urbana-Champaign
Tyler Dick, University of Illinois, Urbana-Champaign

Current Research in Railroad Infrastructure Design & Maintenance

Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1456
John Edwards, University of Illinois, Urbana-Champaign, presiding
Theodore Sussmann, OST-R/Volpe Center, presiding

Ballast Inspection Tool Using Seismic Surface Waves

Charles Oden, Earth Science Systems, LLC
Timothy Stark, University of Illinois, Urbana-Champaign
Choon Park, Park Seismic, LLC
Carton Ho, University of Massachusetts, Amherst

Automatic Rail Surface Defects Inspection Based on Mask R-CNN

Feng Guo, University of South Carolina
Yu Qian, University of South Carolina
Dimitris Rizos, University of South Carolina
Zhi Suo, Beijing University of Civil Engineering and Architecture

Optimization of Multi-Period Rail Procurement Plan

Hsin-Cheng Shih, National Taiwan University
Chih-Heng Yeh, National Taiwan University
Yung-Cheng Lai, National Taiwan University

Emerging Trends in Rail Transit Infrastructure
Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1457

Development of Deep Convoluted Neural Networks (DCNNs) and Change Detection Technology for Improved Railway Track Inspection
Ryan Harrington, University of Illinois, Urbana-Champaign
Richard Fox-Ivey, Railmetrics
Arthur Lima, University of Illinois, Urbana-Champaign
Thanh Nguyen, Railmetrics
Van Nguyen, Railmetrics
Marcus Dersch, University of Illinois, Urbana-Champaign
John Laurent, Railmetrics
John Edwards, University of Illinois, Urbana-Champaign

Advanced Full-Scale Laboratory Dynamic Load Testing of a Ballasted High-Speed Railway Track
Bin Feng, University of Illinois, Urbana-Champaign
Yuamar Basarah, University of Illinois, Urbana-Champaign
Qiusheng Gu, Zhejiang University
Xiang Duan, Zhejiang University
Xuecheng Bian, Zhejiang University
Erol Tutumluer, University of Illinois, Urbana-Champaign
Youssef Hashash, University of Illinois, Urbana-Champaign
Hai Huang, Pennsylvania State University

Engineered Semi-flexible Composite Mixture and Its Implementation Method for Mitigating Railroad Bridge Transition
Shuai Yu, Pennsylvania State University, University Park
Shihui Shen, Penn State Altoona
Hai Huang, Pennsylvania State University
Cheng Zhang, Pennsylvania State University, University Park

Data-Driven Railway Crosstie Support Condition Prediction using Deep Residual Neural Network: Algorithm and Application
Bin Feng, University of Illinois, Urbana-Champaign
Zhongyi Liu, University of Illinois, Urbana-Champaign
Erol Tutumluer, University of Illinois, Urbana-Champaign
Hai Huang, Pennsylvania State University

Current Research in Rail Safety
Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1458

Analysis of Freight Train Derailment Rates for Unit Trains and Manifest Trains
Zhipeng Zhang, Shanghai Jiao Tong University
Xiang Liu, Rutgers University
Zheyong Bian, Rutgers University
Tyler Dick, University of Illinois, Urbana-Champaign
Jiaxi Zhao, University of Illinois, Urbana-Champaign
Steven Kirkpatrick, Applied Research Associates Inc

Schedule of RailTEC Presentations and Posters

Identification of High-Risk Driving Behavior and Sections for Rail Systems

Yu-Fu Chen, National Taiwan University
Kung-Chun Hsueh, National Taiwan University
Yung-Cheng Lai, National Taiwan University

Current Research in Highway/Rail Crossings and Railroad Trespassing

Friday, January 29 1:00 PM–2:30 PM ET | Poster Session 1459
Samantha Chadwick, WSP, presiding

TRB Rail Committee Emeritus Members

Dr. Christopher Barkan | AR000 Rail Group

Dr. Ernest Barenberg | AR050 Railroad Track Structure System Design

Schedule of Rail Committee Meetings with RailTEC Presiding

Rail Group Executive Board
Thursday, January 07 2:00 PM–5:00 PM ET
George Grimes, Patriot Rail Company

Railroad Infrastructure Design and Maintenance Committee
Tuesday, January 12 10:00 AM–1:00 PM ET
John Edwards, University of Illinois, Urbana-Champaign
Theodore Sussmann, OST-R/Volpe Center

International Urban Rail Transit Subcommittee, AP065(3), Joint Subcommittee of AP065, AR010
Thursday, January 14 10:00 AM–11:30 AM ET
Mark Walbrun, Quandel Consultants, Inc

State Rail Transportation, AR040(2), Joint Subcommittee of AR040, AR010, AR030
Thursday, January 14 4:00 PM–5:30 PM ET
Sean Pengelly, Lake State Railway

Rail Capacity, AR040(1), Joint Subcommittee of AR040, AR010, AR030, AP065, AT010
Friday, January 15 12:00 PM–1:30 PM ET
Tyler Dick, University of Illinois, Urbana-Champaign

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!

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