Editorial for the journal of rail and rapid transit high speed rail: Education interchange conference special edition
Steele, Heather; Jack, Anson

DOI:
10.1177/09544097211065864

License:
Creative Commons: Attribution (CC BY)

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (Harvard):

Link to publication on Research at Birmingham portal

General rights
Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

• Users may freely distribute the URL that is used to identify this publication.
• Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
• User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
• Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy
While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Download date: 31. Oct. 2023
Editorial for the journal of rail and rapid transit high speed rail: Education interchange conference special edition

Heather Steele and Anson Jack

Keywords
railways, high speed rail, editorial, simulations, technology

Date received: 15 November 2021; accepted: 18 November 2021

High Speed Rail (HSR) has been flourishing across the globe, providing a low carbon transport solution for moving people within and between countries for over half a century. With high speed lines operational or planned in 45 countries, there is a growing need for tailored education and research to meet the particular needs of the sector. The High Speed Rail: Education Interchange (HSR:EI) conference invited stakeholders from across the world to share their challenges, experience and ideas, to create a platform for future collaboration in research and to help shape future education programmes.

Due to the worldwide pandemic, HSR:EI was hosted virtually by the Birmingham Centre for Railway Research and Education at the University of Birmingham in December 2020. It brought together over 100 participants and contributors for a programme of thought-provoking presentations from industry and academic experts, showcases of current technical and educational research, discussion round tables and a workshop on facilitating collaboration. This special issue of the Journal of Rail and Rapid Transit showcases a number of the technical contributions presented during the conference, at the cutting-edge of research applicable to HSR.

Alongside the rapid growth of HSR networks, railways have been tending towards the digitalisation of operations and control. Managing the complexity of interfaces between trains and infrastructure at high speed, whilst ensuring passenger safety and performance, is being supported by advances in Traffic Management Systems, Automatic Train Operation, remote sensing, evidence-based decision support tools and other innovations. The five papers in this issue deal with one or more of these varying aspects of digitalisation.

Liu et al., (2021) focus on the testing and validation of Traffic Management Systems, which monitor and control train movements across a network, presenting the communication Platform for Traffic Management demonstrator (OPTIMA) developed through the Shift2Rail OPTIMA project. The systematic approach for the validation of Traffic Management Systems through the communication platform is discussed.

Hyde et al., (2021) also consider the context of future Traffic Management Systems in their work on use cases for obstacle detection and track intrusion detection systems, part of the Shift2Rail SMART2 system concept. As railways introduce Automatic Train Operation, there is a need to automate this detection role for different types of railway operation.

Further insight into Automatic Train Operation for HSRs is provided by Feng et al., (2021). The authors present a notch-based train speed trajectory optimisation model to determine realistic energy-efficient train trajectories for high speed trains which have traction and braking notches, an advance on typical models which do not consider notches.

Ketphat et al., (2021) also focus on train control, introducing multiple state movements for simulating a train’s movement under a virtual coupling system, whereby trains run at minimum separation in a virtual convoy. The potential benefits in capacity, safety and stability are explored through simulation.

The paper by Sasidharan et al. (2021) presents a decision support tool to inform economically justified asset management strategies. Derailment risks associated with railway track conditions and the impact of different maintenance interventions are evaluated from a whole lifecycle cost perspective using commercially available data.

It is clear from the diverse topics covered that the digitalisation of railway operations and control, particularly for HSR, provides a rich field for future innovative research. We are grateful to the paper authors for sharing their advances at the HSR:EI conference, and to the Journal of Rail and Rapid Transit editorial team and reviewers for enabling them to share their work with a wider audience. We hope that this Special Issue will be of interest to the global railway community.

Birmingham Centre for Railway Research and Education, University of Birmingham, Birmingham, Ireland

Corresponding author:
Heather Steele, Birmingham Centre for Railway Research and Education, University of Birmingham, Edgbaston, Birmingham B15 2TT, Ireland.
Email: h.j.j.steele@bham.ac.uk
Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Heather Steele https://orcid.org/0000-0003-0970-0663

References


