Editorial

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Biographical notes: Xinqun Zhu received his PhD degree from the Hong Kong Polytechnic University in 2001. Currently, he is an Associate Professor in Structural Engineering at the School of Civil and Environmental Engineering, University of Technology Sydney. He has been a chief investigator of over 30 research grants. His research interest includes structural health monitoring and condition assessment, vehicle-bridge interaction dynamics and smart rehabilitation/strengthening composite structures. He has published over 200 articles which include two research books and 117 referred journal papers.

Tomonori Nagayama received his PhD degree at the University of Illinois at Urbana-Champaign in 2007. Currently, he is an Associate Professor in Department of Civil Engineering at the University of Tokyo. He works on wireless structural monitoring, vehicle-bridge interaction analysis, and vehicle response analysis. He has been a chief investigator for seven Japan Society for the Promotion of Science (JSPS) grants and three other research grants. He published over 150 technical publications.

Jun Li received his PhD degree at the Hong Kong Polytechnic University in 2012. Currently, he is a Senior Lecturer in School of Civil and Mechanical Engineering at Curtin University. He works on the development and application of novel vision-based and artificial intelligence techniques, and new signal processing techniques for structural health monitoring of civil engineering structures. He has been a chief investigator for ten research grants and has published over 120 technical publications.

Introduction

The use of the vehicle-bridge interaction data for structural health monitoring has received considerable interest recently. For academic exchange of the latest developments and applications of innovative techniques and approaches in bridge condition assessment and identification subjected to moving vehicles, with the encouragement and support from Professor Hong Hao, the Chief Editor of the *International Journal of Lifecycle Performance Engineering* (*IJCPE*), a special issue on 'Innovative techniques in bridge condition assessment and identification subjected to moving loads' was established. Six papers were finally included in this special issue after peer review. Drive-by bridge inspection has attracted many researchers in recent years and the instrumented vehicle can be used to have a quick scan on the large volume of highway bridges. Takahashi and Yamamoto (2019) presented a damage index based on the spatial singular mode angle and Chang et al. (2019) estimated bridge surface profile from accelerations of a passing vehicle. To fully understand the vehicle-bridge interaction, the vehicle and bridge responses can be measured simultaneously. Wang and Nagayama (2019) developed a two-step approach for bridge modal mass identification using synchronously measured vehicle and bridge responses. Moving load identification is one of two inverse problems in vehicle-bridge interaction dynamics. Zhou et al. (2019) presented a dynamic displacement reconstruction from bridge acceleration and strain response measurements for moving load identification. Uncertainty is a big challenge in the vehicle-track interaction analysis and Zhu et al. (2019) presented a method for uncertainty analysis of the vehicle-track interaction system with fuzzy variables. As a practical application, Zhang et al. (2019) presented a safety evaluation strategy based on structural health monitoring system for a composite girder cable-stayed bridge.

As the guest editors of the special issue in IJLCPE, we would like to thank the authors who willingly submitted their high-quality work to realise this special issue. We would also like to express our sincere appreciation to the great help of the reviewers for their careful review, valuable comments and suggestions contributed significantly to improve the content of this special issue.