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On behalf of the International Academy of Science, Engineering and Technology (International ASET Inc.), the organizing committee would like to welcome you to the 7th International Conference on Civil, Structural and Transportation Engineering (ICCSTE'22).

ICCSTE'22 is aimed to become one of the leading international annual conferences in the fields related to civil, structural, and transportation engineering. This conference will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

ICCSTE is a series of international conferences held annually. The 7th International Conference on Civil, Structural and Transportation Engineering (ICCSTE'22) is going to be held in a hybrid format, i.e. in person as well as online.

In the seventh meeting of this conference, four keynote speakers will share their expertise with the aim of exposing participants to a wide spectrum of applications, and to foster crosspollination of ideas and develop new research interests. In addition, approximately 47 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the 7th International Conference of Civil, Structural and Transportation Engineering (ICCSTE’22). We wish you a very successful and enjoyable experience.

Dr. Khaled Sennah
Conference Chair and Proceedings Editor
ICCSTE'22
The 7th International Conference on Civil, Structural and Transportation Engineering (ICCSTE'22) aims to become the leading annual conference in fields related to civil, structural and transportation engineering. The goal of ICCSTE'22 is to gather scholars from all over the world to present advances in the fields of civil, structural and transportation engineering and to foster an environment conducive to exchanging ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

ICCSTE is a series of international conferences held annually. These conferences focus on all aspects of civil, structural and transportation engineering. After successfully holding ICCSTE'15 to ICCSTE'21 in Canada, ICCSTE'22 is hosted in Niagara Falls - Canada as well this year. ICCSTE'22 is going to be held in a hybrid format, i.e. in person as well as online.

ICCSTE is an acronym for International Conference on Civil, Structural and Transportation Engineering.

- All papers were peer-reviewed
- The conference proceedings are published under an ISSN and ISBN number
- Each paper is assigned a unique DOI number by Crossref
- The conference proceedings are indexed by Scopus and Google Scholar
- The proceedings are permanently archived in Portico (one of the largest community-supported digital archives in the world)
We would like to thank the following for accepting to act as a member of the Scientific Committee for the ICCSTE’22 Congress:

Scientific Committee Chairs

**Dr. Khaled Sennah**  
Ryerson University, Canada  
Conference Chair

Scientific Committee Members

- Dr. Francis Au, University of Hong Kong, Hong Kong
- Dr. Bruno Briseghella, Fuzhou University, China
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- Dr. Said Easa, Ryerson University, Canada
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- Dr. Hosein Naderpour, Semnan University, Iran
- Dr. Elżbieta Macioszek, Silesian University of Technology, Poland
- Dr. Iraj H.P. Mamaghani, University of North Dakota, USA
- Dr. Ayman M. OKEIL, Louisiana State University, USA
- Dr. Luigi Di Sarno, University of Liverpool, UK
- Dr. Mohamed Shahin, Curtin University, Australia
- Dr. Yongze Song, Curtin University, Australia
- Dr. Maged A. Youssef, University of Western Ontario, Canada
The keynote information for the 7th International Conference on Civil, Structural and Transportation Engineering (ICCSTE'22) is as follows:

**Dr. Alemdar Bayraktar**  
Karadeniz Technical University, Turkey

**Dr. Hany El Naggar**  
Dalhousie University, Canada

**Dr. Hesham El Naggar**  
Western University, Canada

**Dr. Liping Fu**  
Western University, Canada
Dr. Bayraktar received his Ph.D. in Structural Engineering from Karadeniz Technical University in Turkey in 1995 and has been serving as a professor since 2003. His research interests are Structural Engineering, Earthquake Engineering, and Structural Health Monitoring. He has 172 international journal papers and over 300 other publications, national and international research and application projects, journal editorial board and conference scientific committee members, and invited speakers. He has successfully supervised many MSc and Ph.D. theses. Dr. Bayraktar was selected as the most productive scientist between 2007-2011 in Karadeniz Technical University by Elsevier. He was awarded the Science Award in 2012 by the Association of Dam Safety in Turkey, Paper Award in 2009 by Roads Turkish National Committee, and Faculty High-Performance Awards in 2009, 2010, 2011, 2012, 2014.

Dr. Hany El Naggar, Ph.D., P.Eng., is a Professor of GeoStructural/Geotechnical Engineering at Dalhousie University with more than 25 years of experience in civil construction, geotechnical and structural engineering and research in Canada and overseas. He has participated in several geotechnical and structural investigations and is experienced in the analysis and design of foundations and soil-structure interaction of buried infrastructure. Dr. El Naggar and his research team have investigated the SSI effects around buried infrastructure and explored innovative uses of tire derived aggregate (TDA) as a buffer zone to create stress arching and reduce demand on rigid pipes and culverts. They also proposed an earth pressure reduction system using a geogrid reinforced platform bridging system to reduce stresses on buried utilities and studied the effects of high-rise buildings on pre-existing tunnels. Likewise, they conducted several slope stability assessments for high embankments and dams and developed a new sand-coated glass fibre reinforced polymer (GFRP) pile with an enhanced friction performance.
**ICCSTE'22 KEYNOTE SPEAKERS**

**Dr. Hesham El Naggar, Western University, Canada**

**Titles:** Numerical Investigation of the Imposed Earth Pressures on Three-Sided Reinforced Concrete Culverts Supported on Non-Yielding Foundation Soil

Dr. El Naggar is a Distinguished University Professor of Western University, Canada. He is Editor-In-Chief of Soil Dynamics and Earthquake Engineering and past Associate Editor of the Canadian Geotechnical Journal. He published more than 500 technical papers/book chapters on foundations, soil-structure interaction and geotechnical earthquake engineering; and consulted on major projects worldwide. Dr. El Naggar attracted more than $20M of research funding and graduated 100 PhD and MESc students. He received numerous awards including: Geosynthetics, Stermac, Meyerhof, Canadian Geotechnical Colloquium Speaker, Western University Distinguished Professorship, Faculty Scholar Award, Outstanding Teaching, and Research Excellence Awards as well as the 2015 Ontario Professional Engineers Medal for Engineering Research & Development.

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**Dr. Liping Fu, University of Waterloo, Canada**

**Titles:** Advancing Transportation Safety and Sustainability Using Big Data and Machine Learning

Dr. Liping Fu is a Professor in the Department of Civil and Environmental Engineering and Director of the Innovative Transportation System Solutions (iTSS) Lab at the University of Waterloo. He is a Fellow of Canadian Society for Civil Engineering and the past Chair of Transportation of Division of CSCE. Dr. Fu received Transportation Association of Canada (TAC)’s Academic Merit Award (2011) sponsored by Transport Canada for his long-term contribution to the advancement of the academic field and to the development of tomorrow’s transportation leaders. His was also the recipient of Engineering Research Excellence Award (2021) and Excellence in Graduate Supervision (2017). Dr. Fu’s research interest specifically focuses on evaluation and optimisation of large, complex traffic and transportation service systems where uncertainty and dynamics play a major role, and on the development of decision support tools for use in managing these systems.
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At International ASET Inc., we take matters that relate to ethics in publishing very seriously. We believe that the peer-review publication process is a vital building block of academia, and its integrity must be maintained at all costs, which is why every article will be peer-reviewed by several experts in the field. Under peer-review, experts in the related fields are required to provide opinions and comments on the improvements of the submissions.

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Only persons who have significantly contributed to the work and the manuscript can be named authors on a paper. These contributions include the idea/concept, design, experiments, evaluation, analysis, drafting or revision of the manuscript, and others. Authors must all have agreed to be named as such and for the manuscript to be submitted. Anyone who has contributed based on the above, but the level of contribution is not significant, may appear in the acknowledgement section of the manuscript.

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Ethics & Malpractice

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