PROGRAMME

Tuesday, 10 December 2019

07:30 - 08:30
Breakfast Registration
Coffee, tea, juice and mornnings refreshments available

08:30 - 08:35
Opening Address by Enno Blom, Stanford University
- Fiber-based Sensing for Large-Scale Urban Infrastructure Characterization and Monitoring Using Telecommunication Infrastructure

SESSION 1
FIBER-BASED DISTRIBUTED ACoustic Sensor ING (FIBER)
Session Chairs: Elke Li & Ruben Duhme

09:30 - 09:50
New Signals in Modulation Data Acquired by Fiber-Optic Sensors
Dongliang Cao, National University of Singapore

10:05 - 10:20
Acoustic Noise Recorded by Owing and Telecom Fiber Optic Cables in a Urban Environment: Curtin University: Campus Case Study
Michael Varley, University of Melbourne

10:25 - 10:45
Coffee Break - 20 min - Alcove Ballroom

10:45 - 11:25
KEYNOTE: Geophysical Data Integration as a Scientific Problem Solving: How to Address Complex Engineering Problems
Georgia Cassiani, University of Padua

SESSION 2
GEOPHYSICAL APPLICATIONS: GROUND PENETRATING RADAR
Session Chairs: Jonathan Chia & Giorgio Cassiani

11:25 - 11:50
Improving Utility Imaging with 3D Real-Time GPR Data Processing
Yong Chao, National University of Singapore

11:50 - 12:15
Cruise Track Analysis to Numerical and Measured GPR Data
Huan He, University of New South Wales

12:15 - 12:35
Moderated Discussion – 10 min

12:35 - 13:00
LUNCH – 1 hr – Kallang Room (Level 4)

13:35 - 14:05
KEYNOTE: Use of MASW for Smart City Development – Case Histories at All Sites
Kris Dao, Terria Australia Geophysics

SESSION 3
INTEGRATION OF GEOPHYSICS AND CIVIL ENGINEERING: CASE STUDIES I
Session Chairs: Koichi Hayashi & Koya Suto

14:45 - 15:00
Application of Geophysical Imaging and Geotechnical Modeling for Urban Geotechnics: Rosen Road
Chunsong Chu, The University of Hong Kong

15:00 - 15:20
Moderated Discussion – 10 min

15:20 - 15:50
COFFEE BREAK – 20 min – Alcove Ballroom

15:50 - 16:30
KEYNOTE: Usage of Seismic Prediction Systems on Tunnel Boring Machines (TBM) for Discussion of HVSR Processing and Applications in Singapore
Elita Li, National University of Singapore

SESSION 4
GEOPHYSICAL APPLICATIONS: ELECTRICAL METHODS
Session Chairs: Darren Chan & Ruben Duhme

16:30 - 16:55
Imaging Band of Tunnel Drilling Machines with Electrical Resistivity
Mike Mazurek, Colorado School of Mines

16:55 - 17:20
Pitfalls and Countermeasures in Cross-Well Electrical Resistivity Imaging
Chen Ping, National Cheng Kung University

17:20 - 17:45
Cross-Borehole Geophysical Tomography to Identify Underground Flare in Engineering
Dongliang Cao, National University of Singapore

17:45 - 18:05
MODERATED SESSION – Changi Room 1 & 2 - Sponsored by Halliburton

Wednesday, 11 December 2019

08:30 - 09:10
KEYNOTE: Estimating 3D-5-Mile Velocity Structures From Seismic Ambient Noise Based on a Common Midpoint Spatial Regularization Method
Kazuyuki Hayashi, OYO Corporation

SESSION 5
GEOPHYSICAL APPLICATIONS: AMBIENT SEISMIC IMAGING
Session Chairs: Aoju Dush & Eileen Martin

09:10 - 09:35
Seis-eq in Singapore – Insights into Singapore’s Subsurface Structure from a Seismic Model Array
Koen Lynen, Nanyang Technological University

09:35 - 10:00
Deep-Bedrock Detection Based on Seismic Interferometry Using Ambient Noise in Singapore
Enthusia Nitis, National University of Singapore

10:00 - 10:25
Seismic Method Combined with Logging Data for Urban Underground Investigation in Hangzhou, China
Xin Guo, Zhejiang University

10:25 - 10:45
Moderated Discussion – 10 min

10:45 - 11:05
COFFEE BREAK – 20 min – Alcove Ballroom

11:05 - 11:35
KEYNOTE: Web-based 3D Seismic Model for Singapore and its Applications
Jian-Chu, Nanyang Technological University

SESSION 6
FIBER-BASED DISTRIBUTED ACoustic Sensor ING (FIBER)
Session Chairs: Tias Kui & Eileen Martin

11:35 - 12:00
DSB Deployment on Existing Fiber Infrastructure at RUS
Erik, University of National Subang Singapore

12:00 - 12:25
Backscattering Enhanced Optical Fiber (BEF) Based Ultra-High Sensitivity DAS and its Applications to Smart City
Chun Sun, University of Science and Technology

12:25 - 12:50
Ultra-high Strain Resolution DAS System and its Applications
Qinghe Wang, Shanghai University

12:50 - 13:10
Moderated Discussion – 10 min

13:10 - 14:00
LUNCH – 1 hr – Kallang Room (Level 4)

SESSION 7
POSTER SESSION

14:00 - 15:30
A Study on Monitoring Ground Subsidence Near Construction Expansion Area Based on Off Methods
Canfion Dou, Singapore University

Local Site Effect Estimation Using Vertical Spectral Ratios of Microtremor Data
Jiaxu Li, Beihang University, China

Remote Sensing: Applications and Rheology of Soil Materials
Gao, Tsinghua University, China

Integration of Geophysical Imaging and Geotechnical Modeling for Urban Geotechnics: Rosen Road
Chunsong Chu, The University of Hong Kong

Moderated Discussion – 10 min

15:30 - 16:00
COFFEE BREAK – 20 min – Alcove Ballroom

16:00 - 16:30
KEYNOTE: Role of Geophysical Investigations in Mapping the Holocene and Anthroprocene for Urban Geohazard Assessment and Risk Management Utilizing Ongoing Digital Revolution
Rahul Dey, National University of Singapore

SESSION 8
INTEGRATION OF GEOPHYSICS AND CIVIL ENGINEERING: CASE STUDIES II
Session Chairs: Sergei Terzaghi & Kelvin Long

16:30 - 16:55
Monitoring of Displacements on Buildings and Structures Using LiDAR Data: Towards a New Standard for Monitoring Urban Areas
Alessandra Ferrari, The Alanian

16:55 - 17:20
Monitoring of Displacements of Geophysical and Geotechnical Data for Characterization of Near Surface Settlements
Yizhong Wang, National University of Singapore

17:20 - 17:45
Discussion of R&D Processing and Applications in Singapore
Jian-Chu, Nanyang Technological University

17:45 - 17:55
Moderated Discussion – 10 min

Thursday, 12 December 2019

08:00 - 08:30
KEYNOTE: Planning for a Future-Ready City of Tomorrow
Koichi Hayashi, National University of Singapore

SESSION 9
INTEGRATION OF GEOPHYSICS AND CIVIL ENGINEERING: CASE STUDIES III
Session Chairs: Charles King & Koichi Hayashi

09:00 - 09:30
Application of Geophysics in Underground Construction – a Singapore Perspective
Yang Chao, Defense Science and Technology Agency (DSTA)

09:30 - 10:00
Practical Case Studies of Geophysical Technique Application in Hong Kong and the UK
Mark Wallace, Arup HK

10:00 - 10:30
Passive Seismic Method for Grand Puris Projects
Clement Magnier, Science

10:30 - 11:00
Moderated Discussion – 15 min

11:00 - 11:30
KEYNOTE: Urban Geophysics in Managing Subsurface Risk
Canfion Dou, Singapore University

SESSION 10
GEOPHYSICAL APPLICATIONS IN URBAN TRAFFIC SYSTEMS
Session Chairs: Dinh Phuong Lin & Carlton Hall

11:30 - 12:05
Transferring Fibr Optic Cables into Geophysical Sensors Providing Traffic Monitoring and Infrastructure Monitoring at Smart City State Co., Undercar

12:05 - 12:30
Audio for Autonomous Driving: The Cut-The Cork

12:30 - 12:55
Seismic Traffic Monitoring with Distributed Acoustic Sensing
Sanghun Kim, Hong Kong University of Science and Technology

12:55 - 13:30
Moderated Discussion – 15 min

13:30 - 14:10
LUNCH – 1 hr – Kallang Room (Level 4)

14:00 - 14:30
KEYNOTE: Estimation of Earthquake Monitoring in an Urban Environment – Thought, Concepts and Pitfalls From Case Historie Sergei Terzaghi, Arup USA

SESSION 11
MACHINE LEARNING APPLICATIONS IN GEOPHYSICS AND CIVIL ENGINEERING
Session Chairs: Jingming Bu & Sergei Terzaghi

14:00 - 14:30
The Role of Machine Learning in Data-Driven Geophysical Processing: A Practitioner Point of View
Paolo Mazzucchelli, Aresys

14:30 - 15:00
A Data-Driven Framework for Regional Structural Seismic Fragility Assessment
James Long, Massachusetts Institute of Technology (MIT)

15:00 - 15:30
Application of Machine Learning in Earthquake Engineering: A Case Study on Cement Stabilized Soil
Steven Chen, National University of Singapore

15:30 - 16:00
Moderated Discussion – 15 min

16:00 - 16:25
COFFEE BREAK – 20 min – Alcove Ballroom

SESSION 12
PANEL DISCUSSION: BRIDGING THE GAP BETWEEN GEOPHYSICS AND CIVIL ENGINEERING
Panel Discussion Moderator: Alex Cheng

16:25 - 16:30
Panel Discussion: BRIDGING THE GAP BETWEEN GEOPHYSICS AND CIVIL ENGINEERING
Panel Members: Alex Cheng, Michael Bolden, Kelvin Long

16:30 - 16:55
Seismic Data for Measuring Urban Areas
Mike Mazurek, Colorado School of Mines

16:55 - 17:20
Regional Hydro-Geophysical Study of the Groundwater Potentials of Imo River Basin Southeastern Nigeria Using Surficial Resistivity Data
Promod Kumar Painuly, University of Petroleum and Energy Studies (Case Study: Kradinan, East Java, Indonesia)

17:20 - 17:45
Discussion of R&D Processing and Applications in Singapore
Jian-Chu, Nanyang Technological University

17:45 - 17:55
Moderated Discussion – 10 min

17:55 - 18:20
COFFEE BREAK – 20 min – Alcove Ballroom

REGISTER NOW