Keynote Presentation: September 12				
8:30-10:00	Keynote Speaker Moderator: David Piotrowski, Delta Airlines	8:30-9:00	**Steve Chisholm**, Vice President and Chief Engineer for Mechanical and Structural Engineering Boeing Company	Location: Hewlett 200
		9:00-9:30	**Dimitrios Zarouchas**, Associate Professor at the Aerospace Engineering Faculty, Delft University of Technology	
		9:30-10:00	**Anton Norburg Vooren**, Norwegian Defense Material Agency	

Keynote Presentation: September 13				
8:30-10:00	Keynote Speaker Moderator: Matthias Buderath, Airbus	8:30-9:00	**Charbel Farhat**, Professor/Chairman of Aeronautics and Astronautics, Stanford University	Location: Hewlett 200
		9:00-9:30	**Les Lee**, Program Manager of Mechanics of Multifunctional Materials and Microsystems, Air Force Office of Scientific Research	
		9:30-10:00	**HOLGER Speckmann**, Managing Director, Testia GmbH in Germany	

Keynote Presentation: September 14				
8:30-9:30	Keynote Moderator: Brian Eick, US Army Corps Of Engineers	8:30-9:00	**Eleni Chatzi**, Associate Professor and Chair of Structural Mechanics and Monitoring, ETH Zurich	Location: Hewlett 200
		9:00-9:30	**Genda Chen**, Professor and Robert W. Abbett Distinguished Chair in Civil Engineering, Missouri University of Science and Technology	

SPECIAL SESSION: Artificial Intelligence for SHM: Machine Learning Approaches I Session Chair: Prof. Mohammad Jahanshahi, Jordan Klein Location: Hewlett 201		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Development of an Artificial Intelligence (AI) for the prediction of fatigue failure in naval structures: A Digital-twin application** Sourav Banerjee, Benjamin Grisso [University of South Carolina]	11
14:20 ~ 14:40	**Transfer Learning for Structural Damage Classification: Transfer the Knowledge from Cyber to Physical Systems** Burak Duran, Yashar Eftekhar Azam [University of New Hampshire]	176
14:40 ~ 15:00	**Damage localization frameworks based on unsupervised deep learning neural networks** Rafael Junges, Zahra Rastin, Luca Lomazzi, Marco Giglio, Francesco Cadini [Politecnico di Milano]	79
15:00 ~ 15:20	**Deep learning-based automatic blind identification procedure for structural modal identification** Congguang Zhang, Jiangpeng Shu, Yutong Guo, Yifei Xu, Yanbo Niu [Zhejiang University]	117
15:20 ~ 15:40	**Structural parameter identification with a physics-informed neural networks-based framework** Weijia Zhang, Yi-Qing Ni, Lei Yuan, Shuo Hao, Su-Mei Wang [The Hong Kong Polytechnic University]	145

Civil Structures I Session Chair: Prof. Herbert Friedmann, Prof. Fuh-Gwo Yuan Location: 420-040 (Jordan Hall)		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Health Monitoring of a Lenticular Truss Bridge using Wireless Strain Sensors and Finite Element Models: A Case Study** Alireza Enshaeian, Behzad Ghahremani, Piervincenzo Rizzo [University of Pittsburgh]	93
14:20 ~ 14:40	**Scour damage detection of bridge piers using the vibration-based structural health monitoring method: numerical study on a bridge in France** Solaine Hachem, Frédéric Bourquin, Dominique Siegert [Université Gustave Eiffel (UGE)]	160
14:40 ~ 15:00	**Dynamic Bridge Monitoring with Remote Sensing Techniques** Werner Lienhart, Florian Schill, Thomas Moser [Graz University of Technology]	28
15:00 ~ 15:20	**Bridge frequencies identification from the dynamic response of a passing vehicle** Shota Urushadze, Jong-Dar Yau [Institute of Theoretical and Applied Mechanics, Academy of Sciences of the Czech Republic, v.v.i, Prague]	19
15:20 ~ 15:40	**Establishment and Initial In-Site Testing for the Structural Healthy Monitoring System of the Kinmen Bridge in Taiwan** ChinKuo Huang, Hsin-Chu Tsai, Li-Ting Chung, Chin-Te Lin [China Engineering Consultants, Inc.]	51

SPECIAL SESSION: Multifunctional Materials and Metamaterials I Session Chair: Prof. Ken Loh, Prof. Donghyeon Ryu, Prof. Nathan Salowitz Location: Hewlett 103		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Temperature Responsive and Passive, Wireless, Mechanical Metamaterial Sensors** Vishnu Naidu, Yujin Park, Kenneth Loh [UC San Diego]	39
14:20 ~ 14:40	**Resistive response of carbon-black-epoxy nanocomposites upon exposure to moisture** Rémy Fauche, Helge Pfeiffer, David Seveno, Martine Wevers [Department of Materials Engineering, KU Leuven]	107
14:40 ~ 15:00	**Multifunctional Soft Transducer for Electrical and Optical Sensing applied to Fatigue Crack Monitoring** Han Liu, Matthias Kollosche, Simon Laflamme, David Clarke [Department of Civil, Construction, and Environmental Engineering, Iowa State University]	149
15:00 ~ 15:20	**Experimental Investigation on Flexural Vibration Control of Large-scale Reinforced Concrete Metaplates** Jewoo Choi, Tongjun Cho, Sang Guen Bae, Hyo Seon Park [Yonsei University]	351

AEROSPACE STRUCTURES I Session Chair: Dr. Fernando Miguel De Nicolás López, Prof. Gyuhae Park Location: Hewlett 200		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Ultrasonic solution for Structural Health Monitoring using embedded Non-Destructive Testing** Simon Clement, Alice Aubry, Aroua Fourati, Gregoire Marin, Frederic Jean, Frederic Mosca [PYTHEAS Technology]	27
14:20 ~ 14:40	**Debonding Detection in Aerospace Stiffened Composite Structures using Ultrawideband Electromagnetic Tunneling** Vittorio Memmolo, Jochen Moll, Viktor Krozer [University of Naples FEDERICO II & Goethe University Frankfurt]	30
14:40 ~ 15:00	**Study of the fiber Braggâ€™s grating sensor sensibility subjected to harsh environmental conditions** LUDOVIC GAVERINA, JESUS Eiras Fernandez, Emmanuel Marin, Jérémy Riporto, Jeoffray Vidalot, Sylvain Girard, Jean-Michel Roche [ONERA]	138
15:00 ~ 15:20	**Enhancing Interfacial Toughness in 3d-Printed Soft-Hard Interfaces by Fused Filament Fabrication** Umut Altuntas, Demirkan Coker, Denizhan Yavas [Middle East Technical University]	153
15:20 ~ 15:40	**The Application of Risk Minimization to the Selection of Fiber Optic Sensors for an Aerospace Structural Monitoring Application** Adrielly Razzini, Michael Todd, Iddo Kressel, Yoav Ofir, Moshe Tur [University of California San Diego]	212

SPECIAL SESSION: Seismic SHM for Civil Structures I Session Chair: Prof. Maria Pina and Prof. Mehmet Celebi Location: 380-380F		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Coarse-to-Fine Seismic Assessment Based on Computer Vision** Yang Xu, Qiangqiang Zhang, Hui Li [Harbin Institute of Technology]	22
14:20 ~ 14:40	**Dynamic behavior of Cabril dam. Finite element model calibration, structural health monitoring (2008-2023) and seismic safety assessment** Sérgio Oliveira, André Alegre, Rafael Ramos, Jorge Proença, Paulo Mendes [Universiade de Lisboa, Instituto Politécnico de Lisboa, National Laboratory for Civil Engineering (Portugal)]	241
14:40 ~ 15:00	**Damage Assessment in a Reinforced Concrete Structure under Quasi-Static Shear Loading using OFDR-based Fiber-Optic Distributed Strain Monitoring** Ismail Hamdi, Sylvain Magne, Stephane Rougeaul,Pierreetienne Charbonnel,Philippe Mongabure, Sandra Vasic, Pierre Etienne Carbonnel, Fan Wang, Estelle Hervé-Secourgeon, François Voldoire [Université Paris-Saclay, CEA, SEISM Institute]	298
15:00 ~ 15:20	**Seismic Resilience Assessment of Instrumented Buildings: A Performance-based Monitoring Approach** Milad Roohi, Milad Cheraghzade [University of Nebraska-Lincoln]	464
15:20 ~ 15:40	**Satellite InSAR technology for displacements monitoring of bridges: a comparison with on-site topographic measurements and uncertainty quantification** Andrea Valentini, Daniel Tonelli, Alfredo Rocca, Alessandro Lotti, Stefano Zorzi, Daniele Zonta [University of Trento]	417

SPECIAL SESSION: SHM Technology in Wind Turbines I Session Chair: Prof. Wieslaw Ostachowicz, Prof. Hideaki Murayama Location: 380-380W		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Radar-based structural monitoring of wind turbines blades: Field results from two operational wind turbines** Moritz Mälzer, Sebastian Beck, Sercan Alipek, Elias Reichart, Jochen Moll, Viktor Krozer, Christos Oikonomopoulos, JÃ¼rgen Kassner, Manfred HÃ¤gelen, Thomas Heinecke, Burkhard Cerbe, Jonas Rose, Vesa Klumpp, Martin Berger, Mario Kohl [Goethe University Frankfurt]	55
14:20 ~ 14:40	**Separation of physical from mathematical poles in op-erational modal analysis using reduced, reassembled co-variance matrices** Marcel Wiemann, Lukas Bonekemper, Jonas Kappel, Peter Kraemer [University of Siegen, Chair of Mechanics / Structural Health Monitoring]	78
14:40 ~ 15:00	**Tower Vibration-based Icing detection on Operational Wind Turbines** Mustapha Chaar, Yacine Bel-Hadj, Wout Weijtjens, Christof Devriendt [Vrije Universiteit Brussel (VUB)]	103
15:00 ~ 15:20	**Fleetwide interface fatigue load prediction of an operational offshore wind farm using a single accelerometer and SCADA data** Francisco de Nolasco Santos, Nymfa Noppe, Wout Weijtjens, Christof Devriendt [Vrije Universiteit Brussel, OWI-Lab]	116
15:20 ~ 15:40	**A concept of radial pseudo-force for damage detection in wind turbine towers** Wei Xu, Maosen Cao, Zhongqing Su, Wieslaw Ostachowicz [Hohai University]	13

SPECIAL SESSION: Guided Waves in Structures for SHM I Session Chair: Prof. Wieslaw Ostachowicz,, Prof. Yanfeng Shen Location: 380-380D		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Effects of Imperfect Interface on the Dispersion Curves of Torsional Waves in A Composite Hollow Cylinder** Junzhen Wang, Jianmin Qu [Stevens Institute of Technology]	64
14:20 ~ 14:40	**Best Reconstruction Frequency of Lamb Waves via Broadband Measurement** Santosh Kapuria [Indian Institute of Technology Delhi]	110
14:40 ~ 15:00	**Fiber Bragg grating sensor based mode filtering using cosine distance metric** Rohan Soman, Kaleeswaran Balasubramaniam, Pawel Malinowski [Institute of Fluid Flow Machinery, Polish Academy of Sciences]	122
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SPECIAL SESSION: Nonlinear Acoustic and Ultrasonic Techniques for Structural Health Monitoring Session Chair: Prof. Tribikram Kundu, Dr. Danielle Stephens Location: 380-380Y		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Monitoring Of Phase Transition In Frozen Soil Using The Nonlinear (Spc-I) Ultrasonic Technique** Umar Amjad, Uddav Ghimire, Hamad Alnuaimi, Tejo Bheemasetti, Tribikram Kundu [The University of Arizona]	331
14:20 ~ 14:40	**Evaluation of non-linearity effect in ultrasonic pulse-echo signal for structural health monitoring of fatigue induced composite structures** Hossain Ahmed, Asef Sadaf, Sourav Banerjee [Georgia Southern University]	14
14:40 ~ 15:00	**Phase Control-based Manipulation of Multiple Acoustic Waves for Precise Particle Trapping** Xinze Guo, He Gao, Zhongqing Su [The Hong Kong Polytechnic University]	307

SPECIAL SESSION: Integrating Physics in Data-Driven Methods for SHM I Session Chair: Prof. Fotis Kopsaftopoulos, Prof. Dimitrios Zarouchas Location: Hewlett 101		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Tunned Nonlinear Ultrasonic Guided Waves for Fatigue Crack Detection and Quantification** Yanfeng Shen and Shulong Zhou [University of Michigan-Shanghai Jiao Tong University Joint Institute, Shanghai Jiao Tong University]	469
14:20 ~ 14:40	**Evaluation of 2D-CNN for Time-Domain Full Waveform Inversion Improvement** Shoaib Anwar, Austin Yunker, Rajkumar Kettimuthu, Mark Anastasio, Umberto Villa, Jiaze He [University of Alabama]	171
14:40 ~ 15:00	**Physics-informed Gaussian processes for wave loading prediction** Daniel Pitchforth, Elizabeth Cross [University of Sheffield]	227
15:00 ~ 15:20	**Fast prediction of dynamic structural response using reduced basis function combined with neural network** Jixing Cao, Ser-Tong Quek, Shanli Zhang, Chi Zhang, Minbo Cai, Michael Si [National University of Singapore]	182
15:20 ~ 15:40	**From initial to final state: single step prediction of structural dynamic response** Lei Yuan, Yi-Qing Ni, Shuo Hao, Wei-Jia Zhang [The Hong Kong Polytechnic University]	134

SPECIAL SESSION: Human Performance and Human-Structure Interactions I Session Chair: Prof. Ken Loh, Prof. Fernando Moreu. Prof. Hae Noh, Prof. Liming Salvino Location: 380-380X		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Wireless Gait and Loading Monitoring using Nanocomposite Fabric Sensors** Taylor Pierce, Yun-An Lin, Kenneth Loh [UC San Diego]	26
14:20 ~ 14:40	**Assessment of Golf Swings using Motion Tape Wearable Sensors and Machine Learning** Shih-Chao Huang, Yun-An Lin, Taylor Pierce, Elijah Wyckoff, Kenneth Loh [UC San Diego]	58
14:40 ~ 15:00	**Detecting Gait Abnormalities in Foot-Floor Contacts During Walking Through Footstep-Induced Structural Vibrations** Yiwen Dong, Yuyan Wu, Hae Young Noh [Stanford University]	317
15:00 ~ 15:20	**Applying an innovative User-Centric Co-Creation (UC3) approach in developing intelligent wearable robots for elderly assistance: From a transdisciplinary lens** Vivian W. Q. Lou, Clio Yuen Man Cheng, Ke Chen, Calvin Ka Lun Or, Yong Hu, Ning Xi [The University of Hong Kong]	42
15:20 ~ 15:40	**Improving Human Balance with Wearable Devices** Yafei Zhao, Jiaming Chen, Ning Xi [HKU]	43

SPECIAL SESSION: Dynamic Data Driven State Awareness for Intelligent Structural Systems I Session Chair: Erik Blasch, Prof. Fotis Kopsaftopoulos Location: Hewlett 102		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
14:00 ~ 14:20	**Real-Time State Estimation using Topological Data Analysis Features** Arman Razmarashooli, Yang Kang Chua, Vahid Barzegar, Han Liu, Simon Laflamme, Chao Hu, Austin Downey, Jacob Dodson [Department of Civil, Construction, and Environmental Engineering, Iowa State University]	168
14:20 ~ 14:40	**Microsecond Model Updating for 2D Structural Systems Using the Local Eigenvalue Modification Procedure** Emmanuel Ogunniyi, Alexander Vereen, Austin Downey [University of South Carolina]	280
14:40 ~ 15:00	**Bayesian Damage Estimation with Regularized Data-Driven Stochastic Time Series Model** Peiyuan Zhou, Fotis Kopsaftopoulos [Rensselaer Polytechnic Institute]	393
15:00 ~ 15:20	**A data-sparse approach to in-situ fault detection and identification for metal additive manufacturing** Alvin Chen, Fotis Kopsaftopoulos, Sandipan Mishra [Rensselaer Polytechnic Institute]	395
15:20 ~ 15:40	**Online Fatigue Damage Detection for Structures under Random Loading Using a Comparative Sensor-Data Approach** Rannam Chaaban, Claus-Peter Fritzen [University of Siegen]	418

SPECIAL SESSION: Artificial Intelligence for SHM: Machine Learning Approaches II Session Chair: Prof. Mohammad Jahanshahi, Prof. Simon Laflamme Location: Hewlett 201		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**i-FlyNet: Inferring UAV Flight from Wing Behavior** O. Tanay Topac, Cody Gray, Amrita Kumar, Fu-Kuo Chang [Stanford University, Acellent Technologies]	446
16:20 ~ 16:40	**Population-Based SHM Under Environmental Variability Using a Classifier for Unsupervised Damage Detection** Yacine Bel-Hadj, Wout Weijtjens [Vrije Universiteit Brussel]	191
16:40 ~ 17:00	**Fundamental Study on Damage Detection of Civil Structures Modeled as MDOF System Based on Machine Learning** Atsushi Mikami [Tokai University]	195
17:00 ~ 17:20	**Enhancing the Reliability of Structural Health Monitoring for Bolted Joint Connections in Segmented Rotor Blades Using Data Fusion** Abderrahim Abbassi, Tanja Grießmann, Niklas Römgens, Till Julian Adam, Raimund Rolfes [Leibniz Universität Hannover (LUH) Institute of Structural Analysis]	219
17:20 ~ 17:40	**GTRF: A General Tuples Recognition Framework towards deep learning-driven structural health monitoring adapted to diverse supervision paradigms** Qingsong Xiong, Cheng Yuan, Haibei Xiong, Qingzhao Kong [Tongji University]	35

Civil Structures II Session Chair: Maqbool Mohammed,PE; Dr. Christine Schubert Kabban Location: 420-040 (Jordan Hall)		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Structural utilization prediction for the health monitoring of tunnel linings by means of an artificial neural network ensemble** Nicola Gottardi, Steffen Freitag, Günther Meschke [Ruhr University Bochum]	192
16:20 ~ 16:40	**A comparison of structural similarity metrics within Population-based Structural Health Monitoring** Daniel Brennan, Elizabeth Cross, Keith Worden [University of Sheffield]	231
16:40 ~ 17:00	**Revolutionizing Building Safety: A Case Study of Structural-Health Monitoring for the World's Tallest Concrete Skyscraper** Jafarali Parol, Jamal Al Qazweeni, Erol Kalkan, Hasan Kamal [QuakeLogic Inc.]	281
17:00 ~ 17:20	**Monitoring the deformation pattern of an instrumented concrete arch dam** Avirup Sarkar, Bikram Kesharee Patra, Sharad Ghodke, Ashutosh Bagchi [Concordia University]	476
17:20 ~ 17:40	**Structural health monitoring and real-time system identification analysis of the world's tallest sculptured skyscraper** Jafarali Parol, Jamal Al-Qazweeni, Hasan Kamal, Erol Kalkan [KISR]	221

SPECIAL SESSION: Multifunctional Materials and Metamaterials II Session Chair: Prof. ken Loh, Prof. Donghyeon Ryu, Prof. Nathan Salowitz Location: Hewlett 103		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Multifunctional Characterization of 3D Printed Structural Battery Composites for Battery Health Monitoring** Yuekun Chen, Xiangyang Dong [Missouri University of Science and Technology]	479
16:20 ~ 16:40	**Identifying the location of cracks in intelligent carbon based TRC elements** Mahdi Gaben, Yiska Goldfeld [Technion - Israel Institute of Technology]	74
16:40 ~ 17:00	**Sustainable smart self-sensory infrastructures for leakage detection** Yiska Goldfeld, Merel Tannous Abaya [Technion - Israel Institute of Technology]	75
17:00 ~ 17:20		
17:20 ~ 17:40	**Fire safety of rechargeable battery energy storage systems: present and future prospects** Daniel Darnikowski, Magdalena Mieloszyk [Maritime Advanced Research Centre / Institute of Fluid Flow Machinery Polish Academy of Sciences]	287

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16:00 ~ 16:20	**Influence of residual stresses on the dispersion behavior of guided ultrasonic waves in fiber metal laminates** Johannes Wiedemann, Tilmann Barth, Thomas Roloff, Tom Kluge, Natalie Rauter, Christian Hühne [TU Braunschweig - Institute of Mechanics and Adaptronics]	133
16:20 ~ 16:40	**Towards optimisation of forced heating and cooling automated infrared thermography** Michele Meo, Gian Piero Malfense Fierro, Marco Boccaccio [University of Southampton]	240
16:40 ~ 17:00	**Thermoplastic Induction Welded Joint Design For Structural Health Monitoring Damage Detectability** Mattia Mazzeschi, Adrian Pedrosa Valbuena, Karina Carla Nuñez, Maria Teresa Fernandez, Esteban Cañibano, Juan Carlos Merino [Cidaut Foundation]	259
17:00 ~ 17:20	**Model-Assisted Probability of Detection of Cracks Under Fastener for Bayesian Estimation of Equivalent Initial Damage Size** YoungChan Kim, Dooyoul Lee [Korea National Defence University]	294
17:20 ~ 17:40	**Impact monitoring of aircraft large complex structures based on deep transfer learning** Bowen Zhao, Yiliang Zhang, Xianping Zeng, Yihan Wang, Xinlin Qing [School of Aerospace Engineering Xiamen University]	62

PROGNOSTICS AND HEALTH MANAGEMENT Session Chair: Prof. Nikolaos Dervilis, Prof. Hoon Sohn Location: 380-380F		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Deep learning for autonomous monitoring of breathing debonds in stiffened composite structures using non-linear ultrasonic signals** Shirsendu Sikdar [University of Huddersfield]	269
16:20 ~ 16:40	**Structural Performance Monitoring Employing Linear Observer** Mohammad Shamim Miah, Werner Lienhart [Graz University of Technology]	25
16:40 ~ 17:00	**Generation of mode-selective frequency response functions from temporally sampled, broadband and multimodal guided ultrasonic wave signals** Thomas Roloff, Michael Sinapius [Technische Universität Braunschweig]	60
17:00 ~ 17:20	**Phononic crystal waveguides for structural health monitoring applications** Francesco Ciampa [University of Surrey]	489
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SPECIAL SESSION: SHM Technology in Wind Turbines II Session Chair: Prof. Wieslaw Ostachowicz, Prof. Hideaki Murayama Location: 380-380W		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Development and installation of a robust and reliable research Structural Health Monitoring system for grouted joints of offshore wind turbines** Jonas Kappel, Marcel Wiemann, Peter Kraemer, Jochen Moll, Thomas Maetz, Johannes Käsgen, Marco Jackel, Holger Huhn [University of Siegen]	136
16:20 ~ 16:40	**Dimensionality reduction of active vibration data for detection and monitoring of progressive damage in wind turbine blade** Mads Anker Fremmelev, Purim Ladpli, Esben Orlowitz, Nikolaos Dervilis [Siemens Gamesa Renewable Energy]	202
16:40 ~ 17:00	**Vibration Transmissibility as a Method of Damage Detection on Horizontal Axis Wind Turbine Blades** Rachel Henderson, Anthony Sinclair, Fae Azhari [Department of Mechanical & Industrial Engineering, University of Toronto]	173
17:00 ~ 17:20	**Joint input and state estimation of a scaled wind turbine model: an experimental study** Zimo ZHU, Songye ZHU [The Hong Kong Polytechnic University]	193

SPECIAL SESSION: Guided Waves in Structures for SHM II Session Chair: Prof. Wieslaw Ostachowicz, Prof. Herbert Friedmann Dr. Istemi Ozkan Location: 380-380D		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Local resonances for rail thermal stress estimation** Yuning Wu, Keping Zhang, Xuan Zhu, John Popovics [University of Utah]	196
16:20 ~ 16:40	**Analyses by Global-Local method of Ultrasonic Guided Waves propagation in pristine and defective plates for accurate quantitative SHM** Margherita Capriotti, Mingyue Zhang, Luis Escalona, Francesco Lanza di Scalea, Antonino Spada [San Diego State University]	390
16:40 ~ 17:00	**Uncertainty Quantification of Thickness Estimation via Full-Field Ultrasonic Inspection** Neel Shah, Erica Jacobson, Eric Flynn, Adam Wachtor [Los Alamos National Laboratory]	234
17:00 ~ 17:20	**Structural health monitoring of a multi-bolted aluminium plate using lamb waves** Adam Brassington, Marcus Haywood-Alexander, Nikoloas Dervilis, Keith Worden, Tim Rogers [University of Sheffield]	248
17:20 ~ 17:40	**The effect of temperature on guided wave signal characteristics in a honeycomb composite sandwich structure with disbond and delamination** Ramana Raja B, Sauvik Banerjee, Siddharth Tallur [IIT Bombay]	158

SPECIAL SESSION: Human Performance and Human-Structure Interactions II Session Chair: Prof. Ken Loh, Prof. Fernando Moreu. Prof. Hae Noh, Prof. Liming Salvino Location 380-380Y		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Emotion Recognition Using Footstep-Induced Floor Vibration Signals** Yuyan Wu, Yiwen Dong, Sumer Vaid, Gabriella M. Harari, Haeyoung Noh [Stanford University]	337
16:20 ~ 16:40	**Building a wildfire and flooding early warning system for Ohkay Owingeh using Smart Sensing technology** Fernando Moreu, Timothy Thiergart, Ali Mohammadkhorasani, Kaveh Malek [University of New Mexico]	377
16:40 ~ 17:00	**Human-machine interfaces using Augmented Reality** Fernando Moreu, Kaveh Malek [University of New Mexico]	405
17:00 ~ 17:20	**Energy Based Ultrasonic Techniques for Early-stage Damage Detection in Concrete Structures** Sukanya Basu, Saptarshi Sasmal [Council of Scientific & Industrial Research- Structural Engineering Research Centre]	369
17:20 ~ 17:40		

SPECIAL SESSION: Integrating Physics in Data-Driven Methods for SHM II Session Chair: Prof. Fotis Kopsaftopoulos, Prof. Dimitrios Zarouchas Location: Hewlett 101		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Physics-informed transfer learning in PBSHM: a case study on experimental helicopter blades** Jack Poole, Paul Gardner, Aidan Hughes, Nikolaos Dervilis, Tina Dardeno, Robin Mills, Keith Worden [The University of Sheffield]	244
16:20 ~ 16:40	**Partially structured Gaussian processes for grey-box learning in SHM** Matthew Jones, Daniel Pitchforth, Elizabeth Cross [The University of Sheffield]	270
16:40 ~ 17:00	**Physics-Informed Neural Networks for One-Step-Ahead Prediction of Dynamical Systems** Marcus Haywood-Alexander, Chatzi Eleni [ETH Zürich]	308
17:00 ~ 17:20	**Physics-informed Guided Wavefield Data Completion** Harsha Tetali, Joel Harley [University of Florida]	335
17:20 ~ 17:40	**Damage identification for plate structures using transfer learning physics-informed neural networks** Wei Zhou, Yongfeng Xu [University of Cincinnati]	339

SPECIAL SESSION: Inspecting and Preserving Infrastructure through Robotic Exploration I Session Chair: Prof. Genda Chen, Prof. Yang Wang Location: 380-380X		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Robotic Ultrasonic Inspection of Large and Complex Structural Assets** Adam Gilmour, Morteza Tabatabaeipour, Ross MacMillan, Konstantinos Tzaferis, Rory Hampson, William Jackson, Dayi Zhang, Alistair Lawley, Aasim Mohamed, Charles Macleod, Anthony Gachagan, Stephen G Pierce, Gordon Dobie [University of Strathclyde]	243
16:20 ~ 16:40	**Reinforcement Learning-based Bridge Inspection Management** Xin Zhang, Manuel Salmeron, Benjamin Wogen, Xiaoyu Liu, Lissette Iturburu, Shirley J. Dyke [Purdue University]	293
16:40 ~ 17:00	**A Streamlining Remote Sensing and Digitization Process for Bridge Inspection** Zhenhua Shi, Haibin Zhang, Tarutal Ghosh Mondal, Bryan A. Hartnagel, Genda Chen [Missouri University of Science and Technology]	362
17:00 ~ 17:20	**DamBot™ An Unmanned Amphibious Vehicle for Earth Dam Outlet Inspection** Jordan Klein, Steven Bunkley, Charles Ellison, Garry Glaspell, Kenneth Niles, Caroline Webb, Richard Brown, Charles Dickerson, Anton Netchaev [US Army Corps of Engineers, Engineer Research and Development Center]	376
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SPECIAL SESSION: AI-based diagnostics & prognostics of lightweight structures I Session Chair: Prof. Dimitrios Zarouchas, Prof. Theodoros Ioutus Location: Hewlett 102		
TIME	***TUESDAY, SEPTEMBER 12***	***SUBMISSION ID***
16:00 ~ 16:20	**Advanced Health Monitoring of Composite Structures through Deep Learning-based Analysis of Lamb Wave Data for Developing Health Indicators** Morteza Moradi, Ferda Gul, Juan Chiachío, Rinze Benedictus, Dimitrios Zarouchas [Delft University of Technology]	118
16:20 ~ 16:40	**Delamination Size Prediction for Compressive Fatigue Loaded Composite Structures via Ultrasonic Guided wave based Structural Health Monitoring** Ferda C. Gül, Morteza Moradi, Rinze Benedictus, Rafik Hadjria, Yevgeniya Lugovtsova, Dimitrios Zarouchas [Safran Tech]	375
16:40 ~ 17:00	**Pointwise Damage Mapping using Guided Wave Signals for Structural Health Monitoring** Karthik Gopalakrishnan, V John Mathews [Oregon State University]	400
17:00 ~ 17:20	**Ultrasonic Multi-Hole Imaging Using Full Waveform Inversion** Shoaib Anwar, Md Aktharuzzaman, John Day, Jiaze He [University of Alabama	169
17:20 ~ 17:40		

SPECIAL SESSION: Artificial Intelligence for SHM: Machine Learning Approaches III Session Chair: Prof. Mohammad Jahanshahi, Prof. Santosh Kapuria Location: Hewlett 201		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
10:20 ~ 10:40	**Unsupervised Structural Damage Detection on Extraterrestrial Habitats using Information Fusion and Autoencoders** Zixin Wang, Mohammad Jahanshahi, Ilias Bilionis,Yuguang Fu, Amin Maghareh, Shirley Dyke [Purdue University]	226
10:40 ~ 11:00	**When is an SHM problem a multi-task learning problem?** Sarah Bee, Lawrence Bull, Keith Worden, NIkoloas Dervilis [University of Sheffield]	235
11:00 ~ 11:20	**Low-energy impact characterisation models and damage detection in thin monocoque structures using Artificial Intelligence.** Daniel del-Río Velilla, Andrés Pedraza Rodréguez, Antonio Fernández López, Alfredo Güemes Gordo [Universidad Politecnica de Madrid]	237
11:20 ~ 11:40	**Surface damage identification in 3D printed metal parts using Convolutional Neural Network** Alireza Modir, Ibrahim Tansel [Florida International University]	249
11:40 ~ 12:00	**Enhancing Structural Health Monitoring and Management through Edge, Fog and Cloud Computing Architectures** Venkat Surendar Talari, Visvesh Naraharisetty, Prafulla Kalapatapu, Venkata Dilip Kumar Pasupuleti [Mahindra University]	239
12:00 ~ 12:20	**Impact Force Identification on Steel Pipelines using Deep Learning and Bayesian Inference with Minimal Sensing Elements** Mu'men Hamadneh, Samir Mustapha, Mohammad Ali Fakih [American University of Beirut]	228

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10:40 ~ 11:00	**Crack monitoring of lock infrastructure using strain sensors** Travis Fillmore, Bill Spencer, Brian Eick [University of Illinois]	155
11:00 ~ 11:20	**Investigation of Retroreflective Sheeting Materials Response to Induced Strain While Mounted to Common Civil Substrates for use as Passive Strain Sensors for Structural Health Monitoring** Hannah Power, Harry Shenton [University of Delaware]	365
11:20 ~ 11:40	**Low-Cost Efficient Wireless Intelligent Sensor (LEWIS) Deployment for Community Driven Decision Making** Sandeep Alampalli, Kaveh Malek, Ali Mohammadkhorasan, Fernando Moreu [Stantec]	445
11:40 ~ 12:00	**Development of nanocarbon black-enabled self-strain sensing ultra-high-performance cementitious composites** Abasal Hussain, Tao Yu, Fangxin Zou [The Hong Kong Polytechnic University]	439
SPECIAL SESSION: Probabilistic SHM I Session Chair: Daniele Zonta, Prof. Branko Glisik Location: Hewlett 103		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
10:20 ~ 10:40	**Closed form solution for SHM-based Bayesian reliability assessment** Stefano Zorzi, Daniel Tonelli, Alessandro Lotti, Marco Broccardo, Daniele Zonta [University of Trento]	49
10:40 ~ 11:00	**Metrological validation of non-destructive testing techniques for assessing the condition state of pre-stressing systems** Stefano Zorzi, Francesco Rossi, Daniel Tonelli, Alessandro Lotti, Daniele Zonta [University of Trento]	76
11:00 ~ 11:20	**Natural Frequency and Displacement Ratio based Probabilistic Damage Identification for Bridges using FE Model Update** Yoshiyuki Yajima, Murtuza Petladwala, Takahiro Kumura, Chul-Woo Kim [NEC Corporation]	189
11:20 ~ 11:40	**Inverse reconstruction of unsteady aerodynamic loads acting on railway vehicles** Shuo HAO, Su-Mei WANG, Zheng-Wei Chen, Wei-Jia Zhang, Yi-Qing Ni [The Hong Kong Polytechnic University]	112
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10:40 ~ 11:00	**A robotic-based framework for quantifying surface cracks of concrete shear walls** Pedram Bazrafshan, Arvin Ebrahimkhanlou [Drexel University]	167
11:00 ~ 11:20	**Task-significance-aware meta learning for few-image-based structural damage recognition** Yang Xu, Yi Li, Yunlei Fan, Xiaodong Zheng, Yuequan Bao [Harbin Institute of Technology]	20
11:20 ~ 11:40	**Hyperspectral imaging applied for pixel-level crack detection with background interferences** Siyi Chen, Youwu Wang, Yiqing Ni [Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University]	61
11:40 ~ 12:00	**Automated Structural Surface Damage Identification, Classification and Severity Estimation using Deep Learning Approaches** Mrinmoy Kumar Das, Nikhita Rapolu, Dhathri Meda, Prafulla Kalapatapu, Venkata Dilip Kumar Pasupuleti [Mahindra University]	143
12:00 ~ 12:20	**Enhancing Dam Inspection with Pixel-level CNN-FCN Approach via 3D Texture Mapping** Krisada Chaiyasarn, Apichat Buatik, Sirisilp Kongsipl, Vishal Jangid, Navid Khademi [Faculty of Engineering, Thammasat School of Engineering, Thammasat University]	147

ELECTROMECHANICAL IMPEDANCE BASED METHODS I Session Chair: Prof. Wingkong Chiu, Dr. Oscar D'ALMEIDA Location: 380-380W		
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10:40 ~ 11:00	**Damage-sensitivity study in 3D-printed PLA of different infill densities using the electromechanical impedance method** Shishir Kumar Singh, Mohammad Ali Fakih, Samir Mustapha, Pawel Malinowski [Institute of Fluid-Flow Machinery, Polish Academy of Sciences]	123
11:00 ~ 11:20	**Investigation of Impact Damage on GFRP/MWCNT for Structural Health Monitoring** Ozan Can Zehni, Ian Kinloch, Mark Bissett [The University of Manchester]	156
11:20 ~ 11:40	**Influence of boundary conditions and uniaxial loads on local resonances** Keping Zhang, Yuning Wu, Ranting Cui, Xuan Zhu [University of Utah]	197
11:40 ~ 12:00	**Crosstalk effects in matrix of PZT sensors for SHM applications based on the electromechanical impedance principle** JOZUE VIEIRA FILHO, MARIO CADALSO, NICOLAS CORTEZ, MARIO OLIVEIRA, GYUHAE Park [UNESP - FESJ]	291
12:00 ~ 12:20	**Electro-Mechanical Impedance Spectroscopy Leveraging Zero-Group-Velocity Modes for Damage Characterization** Runye Lu, Yanfeng Shen [University of Michigan-Shanghai Jiao Tong University Joint Institute, Shanghai Jiao Tong University]	457

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10:20 ~ 10:40	**Differential Strategy to High-Speed Inspection of Rails via Passive Ultrasonic Monitoring** Izabela Batista, Ali Zare Hosseinzadeh, Diptojit Datta, Francesco Lanza di Scalea [University of California San Diego]	273
10:40 ~ 11:00	**Analysis of acoustic wave generation by low frequency air-coupled transducers** Tomasz Wandowski, Maciej Radzienski, Pawel Malinowski, Pawel Kudela [Institute of Fluid Flow Machinery, Polish Academy of Sciences]	286
11:00 ~ 11:20	**Ray tracing methodology for elastic wave propagation improve simulation applied to aeronautic composite structures** Fernando Sánchez-Iglesias, Antonio Fernández-Lopez, Alfredo Güemes Gordo [Technical University of Madrid]	366
11:20 ~ 11:40	**Structural integrity assessment of nuclear spent fuel canisters using guided waves** Stylianos Livadiotis, Guan-Wei Lee, Nathan Wilson, Salvatore Salamone [University of Texas at Austin]	230
11:40 ~ 12:00	**Non-destructive evaluation of FSW tool plunge depth in thin metallic sheet weld using ultrasonic guided waves.** Manish Kumar Mehta, Govinda Gautam, D. M. Joglekar, D. K. Dwivedi [Department of Mechanical and Industrial Engineering, Indian Institute of Technology Roorkee, 247667 Roorkee, Uttarakhand, India]	326
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SPECIAL SESSION: Challenges of and Solutions for Long-term Structural Health Monitoring I Session Chair: Prof. Mauricio Periera, Prof. Branco Glisik Location: 380-380Y		
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10:40 ~ 11:00	**An Autonomous Early Warning System Concept for Real-Time Remote Monitoring of Critical Structures** Aswin Haridas, Paul Okulov, Stefan Neumann, Holger Speckmann [Testia GmbH]	180
11:00 ~ 11:20	**Smart Structural Health Monitoring for High-Speed Railway Bridges** RAFAEL CASTRO-TRIGUERO, RAFAEL GALLEGO SEVILLA, FERNANDO LEON GARCIA [UNIVERSITY OF CORDOBA]	204
11:20 ~ 11:40	**Technology Innovation in Developing the Health Monitoring Cloud Platform for Maglev Vehicle- Suspension-Guideway Coupling System** Su-Mei Wang, You-Wu Wang, Yi-Qing Ni [The Hong Kong Polytechnic University]	89

SPECIAL SESSION: Remote satellite-based structural health monitoring of structures and infrastructures I Session Chair: Prof. Maria Pina and Prof. Daniel Cusson Location: Hewlett 101		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
10:20 ~ 10:40	**Multi-scale MT-InSAR techniques for structural health monitoring: applications to the Italian Cultural Heritage context** Amedeo Caprino, Gianmarco Bonaldo, Filippo Lorenzoni, Francesca da Porto [University of Padova]	223
10:40 ~ 11:00	**Remote Structural Health Monitoring of Concrete Bridge using InSAR: A Case Study.** Othmane Lasri, Pier Francesco Giordano, Maria Pina Limongelli [Politecnico di Milano]	233
11:00 ~ 11:20	**Satellite Monitoring of Transportation Infrastructure** Istemi Ozkan, Daniel Cusson, Shahroz Shaikh [National Research Council Canada]	282
11:20 ~ 11:40	**Satellite multispectral and infrared imagery analysis to contextualize bridge structural health observations â€“ A study of the Samuel de Champlain Bridge in Montreal, Canada** Helen Stewart, Daniel Cusson [National Research Council Canada]	296
11:40 ~ 12:00	**Technical Guidance on Satellite-based Deformation Monitoring of Bridges** Daniel Cusson, Fernando Greene Gondi [National Research Council Canada]	305
12:00 ~ 12:20	**C-GMS, The Canadian Ground Motion Service - Assessment and Correction of Thermal Effects on Bridges** Valentin Poncos, Daniel Cusson [National Research Council Canada]	364

MODELLING, SIMULATION, AND DIGITAL TWINS I Session Chair: Prof. Liming Salvino, Dr. Fernando Dotta Location: 380-380X		
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10:20 ~ 10:40	**An Adaptive Physics-Constrained Neural Network for Corrosion Reliability Analysis under Dynamic Loading**	65
	Guofeng Qian, David Najera-Flores, Zhen Hu, Michael Todd [University of California San Diego]	
10:40 ~ 11:00	**A reduced-order Digital Twin for Structural Health Monitoring of steel bridges**	220
	Christoph Brenner, Klaus Thiele, Julian Unglaub [Technische Universität Braunschweig, Institute of Steel Structures]	
11:00 ~ 11:20	**Vision-based Displacement Estimation of Large-Scale Infrastructure - a Case Study**	284
	Casey Rodgers, Shuo Wang,Brian Welsh, Shaik Althaf V. Shajihan, Thomas Golecki,Brian Eick, Travis Fillmore, Billie Spencer [University of Illinois at Urbana Champaign]	
11:20 ~ 11:40	**Review of various curing processes and techniques of Printed Circuit Boards (PCB) and introduction of new innovative thermal curing technique**	309
	Mohammed Ateeq, Roland Feuser, Loui Al-Shrouf,Mohieddine Jelali [Cologne University of Applied Sciences]	
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SPECIAL SESSION: Artificial Intelligence for SHM: Machine Learning Approaches IV Session Chair: Prof. Mohammad Jahanshahi, Prof. Santosh Kapuria Location: Hewlett 201		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**On the influence of structural attributes for assessing similarity in population-based Structural Health Monitoring**	262
	Giulia Delo, Cecilia Surace, Keith Worden, Daniel S. Brennan [Politecnico di Torino]	
14:20 ~ 14:40	**Graph convolutional neural networks based strain estimation**	338
	Giulia Marasco, Soheila Sadeghi Eshkevari, Shamim Pakzad [Lehigh University]	
14:40 ~ 15:00	**A Comparative Analysis of Concept Drift Detection Methods with a Systematic and Innovative Approach of Method Selection**	367
	Fabian Gerz, Loui Al-Shrouf, Moheiddine Jelali [Cologne University of Applied Sciences]	
15:00 ~ 15:20	**Implementation of Information Entropy in an Industrial Internet of Things Approach for Structural Health Monitoring Applications**	371
	Sarah Malik, Antonios Kontsos [Drexel University]	
15:20 ~ 15:40	**Bidirectional long short-term memory network for maglev bridge acceleration data reconstruction**	290
	Gao-Feng Jiang, Su-Mei Wang, Yi-Qing NI [The Hong Kong Polytechnic University]	

Civil Structures IV Session Chair: Dr. Sreenivas Alampalli, Prof. Elizabeth Cross Location: 420-040 (Jordan Hall)		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**An Electrical Infrastructure Management Model for Long-term Maintenance and Hazard Mitigation** Nathaniel Levine, Kristen Hollingsworth, Yingjie Wu, Morgan Griffith, Brian McDonald [Exponent]	54
14:20 ~ 14:40	**Evaluating Post-Tensioned Trunnion Girders: A Comparative Study of Scale Model Tests and Numerical Analyses** Wael Zatar, Hien Nghiem, Jason Ray, Hai Nguyen, Shawn Anderson [Marshall University Research Corporation]	140
14:40 ~ 15:00	**Abnormality detection algorithm of horizontal displacement monitoring data during foundation pit excavation based on temporal-spatial characteristics** Hui Su, Jinfeng Zhang, Weihong Chu, Weinan Chen, Zhihua Luo, Shiji Lu [SGIDI Engineering Consulting (Group) Co., Ltd.]	358
15:00 ~ 15:20	**Development of novel rail dampers utilizing particle-damping for the railway application** Xin Ye, Yu-Ling Wang, Wai Kei Ao, Yi-Qing Ni [The Hong Kong Polytechnic University]	73
15:20 ~ 15:40	**Two-dimensional Convolutional Neural Networks for Wood Quality Assessment** Mohsen Mousavi, Amir H Gandomi [University of Technology Sydney]	278

SPECIAL SESSION: Probabilistic SHM II Session Chair: Daniele Zonta, Prof. Branko Glisik Location: Hewlett 103		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**A comparison of value-based and policy-based reinforcement learning for monitoring-informed railway maintenance planning** Giacomo Arcieri, Cyprien Hoelzl, Oliver Schwery, Daniel Straub, Konstantinos G. Papakonstantinou, Eleni Chatzi [ETH Zurich, Technical University of Munich]	370
14:20 ~ 14:40	**Deep Learning based Pothole Monocular Depth Estimation and Segmentation Using 3D Scanner-Derived Depth Maps** Rahmat Ali, Young-Jin Cha [University of Manitoba]	482
14:40 ~ 15:00	**Enabling Robustness to Vehicle-Bridge Variability in Drive-By Bridge Health Monitoring through Physics-Informed Signal Decomposition** Peiyao Xu, Jatin Aggarwal, Hae Young Noh, Jingxiao Liu [Stanford University]	381
15:00 ~ 15:20	**Explainable Machine Learning Framework for Guided Waves Signal Reconstruction and Structural Health Monitoring Under Varying Operating and Environmental States** Yiming Fan, Fotis Kopsaftopoulos [Rensselaer Polytechnic Institute]	387

SPECIAL SESSION: Structural Monitoring for the Spacecraft Structures I Session Chair: Prof. Maria Sakovsky, Dr. Fernando Dotta Location: Hewlett 200		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Effect of space environment on structural diagnostics** Funmilola Nwokocha, Andrei Zagrai, Mary Anderson [New Mexico Institute of Mining and Technology, Socorro, NM]	159
14:20 ~ 14:40	**Durability Of Surface Mounted FBG For Guided Waves Sensing Under Reusable Launch Vehicle Thermal Conditions** Loïc Mastromatteo, Ludovic Gaverina, Florian Lavelle, Jean-Michel Roche, François-Xavier Irisarri [ONERA]	188
14:40 ~ 15:00	**A Structural Health Monitoring System for Impact and Damage Detection in Space Structures** Mariya Pozhanka, Andrei Zagrai, Isabella Wells, Ramon Romero, Amrita Kumar, Roshan Joseph, Cody Gray, Franklin Li [New Mexico Institute of Mining and Technology]	263
15:00 ~ 15:20	**Flexible multifunctional Structural Health Monitoring systems for inflatable space habitat structures** Franklin Li, Serena Wang, Roshan Joseph, Amrita Kumar [Acellent Technologies Inc.]	428
15:20 ~ 15:40	**Strain Sensing in Thin Composite Laminates with Embedded Fiber Bragg Grating Sensors** Brayden Aller, Sergio Pellegrino, Nathan Kinkaid, Juan Mejia-Ariza, Richard Otis, Patrick Chan [California Institute of Technology]	470

SPECIAL SESSION : Artificial Intelligence for SHM: Computer Vision Approaches II Session Chair: Prof. Yiska Goldfeld, Dr. Anita Brown Location: 380-380F		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Revolutionizing Road Maintenance: A Data Fusion and AI-Based Approach** Yu-ting Huang, Nikkhil Vijaya Sankar, Mohammad Reza Jahanshahi, Fangjia Shen [Purdue University]	215
14:20 ~ 14:40	**Enhancing Deep Learning-based Damage Segmentation with Depth Hallucination** Tarutal Ghosh Mondal, Mohammad Jahanshahi [Purdue University]	222
14:40 ~ 15:00	**Target-Free, Vision-Based System Identification of Civil Structures Using Unmanned Aerial Vehicles** Khalid Alkady, Achilles Rasquinha, Josef Brandl, Christine Wittich, Carrick Detweiler [University of Nebraska-Lincoln]	236
15:00 ~ 15:20	**Real Time Condition Monitoring using Phase-based Motion Estimation** Seung Hwan Lee, Yinan Miao, Yeseul Kong, Hyeonwoo Nam, Gyuhae Park [Chonnam National University]	200
15:20 ~ 15:40	**Intuitive and less-supervised structural damage detection using Phase-based Vibration Imaging** Yeseul Kong, Yinan Miao, Seung Hwan Lee, Gyuhae Park [Department of Mechanical Engineering, Chonnam National University]	209

SPECIAL SESSION: SHM Technology in Wind Turbines III Session Chair: Prof. Wieslaw Ostachowicz, Dr. Istemi Ozkan Location: 380-380W		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Quantifiable scour detection for offshore wind turbines using resonance frequency monitoring and a digital twin** Maximillian Weil, Carlos Sastre Jurado, Mustafa Chaar, Kristof Winkler, Wout Weijtjens, Christof Devriendt [Vrije Universiteit Brussel]	203
14:20 ~ 14:40	**Developing Digital Twins of Dynamic Systems Using Vision Techniques, Multi-View Stitching, and Expansion Methods** Javad Baqersad, Rasoul Atashipour, Foroogh Rouhollahi [Kettering Unviersity]	205
14:40 ~ 15:00	**Automated operational modal analysis for the monitoring of a wind turbine blade** Andre Tavares, Diogo Drapier, Emilio Di Lorenzo, Peter Csurcsia, Tim De Troyer, Wim Desmet, Konstantinos Gryllias [Siemens Industry Software NV]	265
15:00 ~ 15:20	**Anomaly Detection in Offshore Wind Turbine Structures using Hierarchical Bayesian Modelling** Simon Smith, Nikolaos Dervilis, Keith Worden [Dynamics Research Group, University of Sheffield]	295
15:20 ~ 15:40	**Wind turbine monitoring using optical motion magnification: challenges and opportunities** Tymon Nieduzak, Nitin Kulkarni, Christopher Niezrecki, Alessandro Sabato [University of Massachusetts Lowell]	353

SPECIAL SESSION: Guided Waves in Structures for SHM IV Session Chair: Prof. Wieslaw Ostachowicz, Prof. Shirley Dyke Location: 380-380D		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Active sensing using LDV and T-shaped arrays in metallic plates for damage localization** Luis Paulo Morais Lima, Gyuhae Park [Chonnam National University]	190
14:20 ~ 14:40	**Wave Propagation and Damage Localization in Thick-walled Hollow Cylinders through Synthesized Inner and Outer Surface Sensing** Yuanman ZHANG, Li CHENG, Shengbo Shan [The Hong Kong Polytechnic University]	6
14:40 ~ 15:00	**Ultrasonic Guided Waves-based Nonlinear Autoregressive Defect Detection for Railway Tracks Using Fiber Bragg Grating Sensing** Da-Zhi Dang, You-Wu Wang, Yi-Qing Ni [Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong S.A.R., China]	38
15:00 ~ 15:20	**Debond localization in honeycomb core sandwich composites using A0 guided wave mode** Aurovinda Kumar Mitra, Dhanashri M. Joglekar [Indian Institute of Technology Roorkee]	347
15:20 ~ 15:40	**Lamb wave-based Non Destructive Evaluation of weld quality in thin section friction stir joints** Govinda Gautam, Manish Kr. Mehta, Dhanashri. M. Joglekar, Dheerendra Kr. Dwivedi [Indian Institute of Technology Roorkee]	359

SPECIAL SESSION: Challenges of and Solutions for Long-term Structural Health Monitoring II Session Chair: Prof. Mauricio Periera, Prof. Branco Glisik Location: 380-380Y		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Effects of thermally induced distress on adhesively bonded piezoelectric wafer active sensors and implications on damage detection and localization** Jesus N. Eiras Fernandez, Ludovic Gavérina, L. Mastromatteo, J.M. Roche [ONERA]	379
14:20 ~ 14:40	**Novel Means and Ways of Getting Structural Health Monitoring into Application** Christian Boller [Saarland University]	467
14:40 ~ 15:00	**A non-parametric mixed learning technique for mitigating environmental effects on structural modal frequencies** Alireza Entezami, Stefano Mariani [Politecnico di Milano, Department of Civil and Environmental Engineering]	253
15:00 ~ 15:20	**Condition monitoring of steel truss bridge using acceleration data** Vaibhav Gupta, U. Saravanan [Indian Institute of Technology Madras]	320
15:20 ~ 15:40	**On condition monitoring of a corroding steel truss bridge - A Case study** Saravanan Umakanthan, Kaibalya Lenka [Indian Institute of Technology Madras]	325

MULTIFUNCTIONAL MATERIALS AND STRUCTURES Session Chair: Prof. Claus-Peter Fritzen, Dr. Saman Farhangdoust Location: Hewlett 101		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Design of multifunctional structural battery composites for the next generation of electric vehicles** Saman Farhangdoust, Shabbir Ahmed, Alexander Strange, Umut Altuntas, Chaoqun Duan, Yaqoub Abdullah, Franklin Li, Serena Wang, Fu-Kuo Chang [Stanford University]	288
14:20 ~ 14:40	**High-dimensional data analytics for sparse recovery of guided-waves dispersion curves using B-splines** Hamed Momeni, Mohammad Jeddi, Arvin Ebrahimkhanlou [Drexel University]	311
14:40 ~ 15:00	**Covariance of Limit Defining Pairs (CLDP): A Novel Approach to Establishing Detection Sensitivity for Structural Health Monitoring Data** Seth Kessler, Christine Schubert Kabban [Metis Design Corporation]	316
15:00 ~ 15:20	**Intelligent Manufacturing Principles for Structural Health Monitoring in Advanced Composite Structures: A Machine Learning-Based Driven Placement Approach** Sean Psulkowski, Balaji Kumar, Tarik Dickens [Florida A&M]	391
15:20 ~ 15:40	**Integrated Sensing System for Automotive Applications** Roshan Joseph, Mahmoud Ghannam, Iskander Farooq, Cody Gray, Franklin Li, Amrita Kumar [Acellent Technologies Inc.]	427

MODELLING, SIMULATION, AND DIGITAL TWINS II Session Chair: Prof. Helge Pfeiffer, Charles Ellison, PE Location: 380-380X		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Evolutionary Sensor Network Design for Structural Health Monitoring of Structures with Time-Evolving Damage** Mayank Chadha, Yichao Yang, Zhen Hu, Michael Todd [University of California San Diego]	67
14:20 ~ 14:40	**Degradation Model Updating for Failure Prognostics Using a Sequential Likelihood-free Bayesian Inference Method and Video Monitoring Data** Jice Zeng, Michael Todd, Zhen Hu [University of Michigan-Dearborn]	69
14:40 ~ 15:00	**Model-informed Unmanned Underwater Vehicle Trajectory Planning for Underwater Inspection of Miter Gates Under Complex Environmental Conditions** Zihan Wu, Jice Zeng, Zhen Hu, Michael Todd [University of California San Diego]	87
15:00 ~ 15:20	**Detection of buckling in columnar structures by shape sensing with multi-core optical fibers** Takafumi Ogura, Makito Kobayashi, Yue Zhao, Daniel Leandro, Hideaki Murayama [The University of Tokyo]	177
15:20 ~ 15:40	**Developing an Experimentable Digital Twin of a Novel Forestry Machine: Application, Experiences, and Benefits** Sebastian Schmid, Ulrich Dahmen, Longxiang Shao, Kai-Uwe Schröder, Jürgen Rossmann [Institute of Structural Mechanics and Lightweight Design, RWTH Aachen University]	224

DIAGNOSTICS I Session Chair: Dr. Hai Nguyen, Prof. Pawel Malinowski Location: Hewlett 102		
TIME	***WEDNESDAY, SEPTEMBER 13***	***SUBMISSION ID***
14:00 ~ 14:20	**Diagnosis of concurrent sensor faults in structural health monitoring systems** Carlos Chillon Geck, Thamer Al-Zuriqat, Kosmas Dragos, Kay Smarsly [Hamburg University of Technology]	48
14:20 ~ 14:40	**An influence of temperature on additive manufactured composite with embedded fiber Bragg grating sensor** Magdalena Mieloszyk, Katarzyna Majewska, Ruta Rimasauskiene, Marius Rimasauskas, Tomas Kuncius [Institute of Fluid Flow Machinery, Polish Academy of Sciences]	213
14:40 ~ 15:00	**Assessment of Corrosion Damage in Steel Samples using Electro-Magnetic Acoustic Measurements** Lukas Peterson, ThankGod Nwokocha, Andrei Zagrai, David Burleigh [New Mexico Tech]	247
15:00 ~ 15:20	**Wayside Acoustic Fault Diagnosis of Train Wheelset Bearing Based on Improved Frequency Sparsity Bayesian Learning** Youliang Zeng, Youwu Wang, Yiqing NI [The Hong Kong Polytechnic University]	218
15:20 ~ 15:40	**Diagnostics of Anomaly Steam Turbine Behavior in terms of Remote SHM and Cloud Computing** Jindrich Liska, Jan Jakl, Vojtech Vasicek [University of West Bohemia, NTIS]	29

SPECIAL SESSION: Artificial Intelligence for SHM: Machine Learning Approaches V Session Chair: Prof. Mohammad Jahanshahi, Dr. Aswin Haridas Location: Hewlett 201		
TIME	THURSDAY, SEPTEMBER 14	SUBMISSION ID
10:00~10:20	**Vehicle-invariant drive-by monitoring across multiple bridges through bootstrapping-enhanced unsupervised domain adaptation** Jatin Aggarwal, Jingxiao Liu, Hae Young Noh [Stanford University]	397
10:20~10:40	**Optimization of Damage Features Contaminated by Nonstationary Colored Noise Algorithms using Johansen Cointegration** Sahar Hassani, Ulrike Dackermann, Amir Gandomi [Centre for Infrastructure Engineering and Safety, School of Civil and Environmental Engineering, University of New South Wales, Sydney, NSW, Australia]	463
10:40~11:00	**Two-dimensional acoustic emission source localization on a Laminated Veneer Lumber plate using machine learning** Xiangdong He, Xuan Zhu [University of Utah]	198
11:00~11:20	**Piece-wise Ritz Analysis of Beams Subjected to Discontinuity in Slope** Sudharsan Parthasarathy, Rakesh K. Kapania [Virginia Polytechnic Institute and State University Blacksburg]	491
11:20~11:40		

Civil Structures V Session Chair: Prof. Antonios Kontsos, Sarah Malik, Prof. Pawel Malinowski Location: 420-040 (Jordan Hall)		
TIME	THURSDAY, SEPTEMBER 14	SUBMISSION ID
10:00~10:20	**A model to monitor cracked reinforced concrete structures using coda waves** Felix Clauß, Mark Alexander Ahrens, Peter Mark [Institute of Concrete Structures, Ruhr University Bochum]	246
10:20~10:40	**Experimental Characterization and Computer Vision-Assisted Detection of Pitting Corrosion on Stainless Steel Structural Members** Riley Muehler, Joshua Venz, Michael Todd, Long Wang [California Polytechnic State University]	328
10:40~11:00	**Validation of data for use in civil infrastructure big data applications** Connor O'Higgins, Connor Kent, David Hester, Su Taylor [Queen's University Belfast]	360
11:00~11:20	**Application of Convolution Neural Network and Neural Network Entropy Algorithm for Structural Health Monitoring** Tzu Kang Lin, Yi-Ting Lin, Kai-Wei Kuo [National Yang Ming Chiao Tung University]	410
11:20~11:40	**Combining Ultrasonic and Electromagnetic Techniques for Early Detection of Corrosion Damage in Reinforced Concrete Structures** Weixia Cheng, Hai-han Sun, Kang Hai Tan, Zheng Fan [Nanyang Technological University Singapore]	431
11:40~12:00	**Strain and Acceleration-based Finite Element Model Updating of a Concrete Highway Viaduct** Doron Hekič, Andrej Anžlin, Diogo Ribeiro, Aleš Žnidarič, Peter Češarek [Faculty of Civil and Geodetic Engineering, University of Ljubljana]	255

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10:40~11:00	**Rail roughness identification via on-board acceleration data and Bayesian filtering** Charikleia Stoura, Vasilis Dertimanis, Eleni Chatzi [ETH Zürich]	129
11:00~11:20	**Interaction between Mass and Stiffness Parameters of Connections for Structural Parameter Estimation of a Steel Grid** Milad Mehrkash, Erin Bell [University of New Hampshire]	299
11:20~11:40	**Uncertainty laws of MIMO modal identification** Binbin Li, Peixiang Wang [Zhejiang University]	432
11:40~12:00	**Continuous-time state-space neural network and its application in modeling of forced-vibration systems** Hong-Wei Li, Yi-Qing Ni, You-Wu Wang, Zheng-Wei Chen, En-Ze Rui [The Hong Kong Polytechnic University]	86

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10:20~10:40	**Robotic end-of-line testing for hydrogen pressure vessels using a strain-based SHM System** Rebecca Richstein, Rebecca Richstein [Institute of Structural Mechanics and Lightweight Design, RWTH Aachen University]	120
10:40~11:00	**An Investigation of the Effect of Measurement Interval on the Autoencoder Based Damage Detection in Uncontrolled Structural Health Monitoring** Kang Yang, Joel B. Harley [University of Florida]	135
11:00~11:20	**Vision-based damage imaging for composite structures through guided waves captured via video decorrelation** Trenton Abbott, Fuh-Gwo Yuan [North Carolina State University]	245
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10:00~10:20	**Accelerating Corrosion Surface-Area Measurements with Computer Vision and Deep Learning: An Ensemble Approach** Hai Nguyen, Shengyi Wang, Rebekah Wilson, Brian Eick, Natalie Becerra-Stasiewicz [Construction Engineering Research Laboratory, Engineer Research and Development]	264
10:20~10:40	**Unleashing the Power of Multi-Source Data for Building Attribute Prediction Based on Deep Learning in Flood Risk Assessment** Abhishek Subedi, Mohammad Reza Jahanshahi, David Johnson [Purdue University]	267
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11:00~11:20	**Multiview vision-based displacement measurement of full-scale miter gate** Junhwa Lee, Shuo Wang, Travis Fillmore, Billie Spencer [University of Illinois at Urbana Champaign]	285
11:20~11:40	**Novel approach for imaging time series for the improvement of classification results Grayscale Fingerprint Features Field Imaging (G3FI)** Hammoud Al Joumaa, Loui Al-Shrouf, Mohieddine Jelali [Cologne University of Applied Sciences]	312
11:40~12:00	**Bridge point cloud completion using deep learning obtained in actual bridge structures** Gen Matono, Mayuko Nishio [Department of Engineering Mechanics and Energy, University of Tsukuba]	275

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10:20~10:40	**Monitoring Damage Evolution in Carbon/Epoxy Composites Using Acoustic Emission Technique** Manoj Rijal, Travis Obie-Rolle, Mannur Sundaresán [North Carolina A & T State University]	374
10:40~11:00	**A COMPARISON OF OPTICAL SENSING SYSTEMS WITH PIEZO-ELECTRIC SENSORS FOR IMPACT IDENTIFICATION OF COMPOSITE PLATES** Natália Ribeiro Marinho, Richard Loendersloot, Frank Grooteman, Jan Willem Wiegman, Tiedo Tinga [University of Twente (UT)]	132
11:00~11:20	**Computational modeling of high-temperature MEMS sensor array for ultrasonics and acoustic emission in structural health monitoring of high temperature advanced reactor pipes** Chenxi Xu, Matthew Daly, Alexander Heifetz, Derek Kultgen, Didem Ozevin [University of Illinois at Chicago]	302
11:20~11:40	**Combined Acoustic and Modal Structural Health Monitoring and Structural Assessment** Herbert Friedmann, Peter Kraemer, Christoph Schmidt, Andreas Nuber, Tobias Adam [Wölfel Engineering GmbH + Co. KG]	332
11:40~12:00	**Semi-supervised learning for acoustic emission monitoring of tendons in prestressed concrete bridges** Alexander Lange, Max Käding, Ronghua Xu, Steffen Marx, Jörn Ostermann [Leibniz Universität Hannover]	477

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10:20~10:40	**Towards passive Fiber Bragg Grating-based measurement of ambient elastic noise for SHM under varying environment** Pierre Calmon, Arnaud Recoquillay, Bastien Chapuis, Nicolas Roussel, Laurent Maurin, Tom Druet, Guillaume Laffont, Bastien Chapuis [Université Paris-Saclay]	459
10:40~11:00	**Promoting novel strategies for the reliability assessment of guided wave based SHM systems** Vittorio Memmolo, Jochen Moll, Oliver Schackmann, Steffen Freitag, Anastasiia Volovikova, Kilian Tschöke, Enes Savli, Yevgeniya Lugovstova, Maria Moix-Bonet, Ahmed Bayoumi, Inka Mueller [University of Naples, Goethe University Frankfurt, Karlsruhe Institute of Technology, Fraunhofer IKTS, DLR Braunschweig, BAM, Bochum University of Applied Sciences]	127
11:00~11:20	**The effect of complex corrosion profiles on remaining wall thickness quantification using shear horizontal guided waves** Konstantinos Tzaferis, Morteza Tabatabaeipour, Gordon Dobie, Gareth Pierce, Mayorkinos Papaelias, Charles MacLeod, Anthony Gachagan [University of Strathclyde]	144
11:20~11:40	**Virtual Frequency Data Fusion for Localization of Multiple Damages from Broadband Lamb Wave Velocity Field** Kannusamy M, Saptarshi Sasmal, Santosh Kapuria [CSIR- Structural Engineering Research Centre]	148
11:40~12:00	**Enhancing guided-wave-based structural health monitoring using metamaterial devices designed by topology optimization** Ze Liu, Shengbo Shan, Li Cheng [The Hong Kong Polytechnic University]	44

SENSOR NETWORKS I Session Chair: Dr. Tina Dardeno Dr. Kim Korsvik Location: 380-380Y		
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10:20~10:40	**Versatile Sensor Node with Acoustic Data Communication Capabilities for FSAT networks in Guided Wave-based Structural Health Monitoring Applications** Octavio A. MÃ¡rquez Reyes, Federica Zonzini, Masoud Mohammadgholiha, Jochen Moll, Luca De Marchi [Johann Wolfgang Goethe-Universität]	352
10:40~11:00	**Heterogenous Sensor Placement Under Uncertainty** Amin Jabini, Erik Johnson [University of Southern California]	402
11:00~11:20	**A mobile sensor network system for sound and vibration** Sang Geun Bae, Jewoo Choi, Hyo Seon Park [Yonsei university]	350
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10:20~10:40	**Performance of Crossed Long-gauge Strain Sensors in the Spread Footing Foundation** Yitian Liang, Branko Glisic [Princeton University]	214
10:40~11:00	**Static and dynamic bridge monitoring with distributed fiber optic sensing** Lisa Strasser, Werner Lienhart, Madeleine Winkler [Graz University of Technology]	225
11:00~11:20	**Integrating Pre-Existing Telecommunication Fiber Cable Vibration Sensing and Drive-by Vehicle Vibration Sensing for Scalable Bridge Health Monitoring** Jingxiao Liu, Siyuan Yuan, Hae Young Noh, Biondo Biondi [Stanford University]	341
11:20~11:40	**Vibration Propagation Analysis of Road Pavement Using Thin Layer Method for Fiber Optic Distributed Acoustic Sensing** Kotaro Fujiwara, Yuichi Yoshimura, Hiroyuki Aoshika, Michio Imai, Ayaka Nasu, Hideki Nagatani, Junichi Kawabata [Kajima Corporation]	102
11:40~12:00	**Adapting Mach-Zehnder Interferometers for Vibration Sensing** Hossein Mahlooji, J. Stewart Aitchison, Fae Azhari [University of Toronto]	303

MODELLING, SIMULATION, AND DIGITAL TWINS III Session Chair: Prof. Samuel Huang, Dr. Peter Furtner, Location: 380-380X		
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10:20~10:40	**Operational Health Monitoring of Bridges Using Bayesian Model Updating and Computer Vision Techniques** Niloofar Malekghaini, Hamed Ebrahimian, Farid Ghahari, Vinayak Sachidanandam, Matthew Bowers, Ertugrul Taciroglub [University of Nevada, Reno]	401
10:40~11:00	**Physics-Informed Neural Network for Analyzing Elastic Beam Behavior** Soheil Heidarian Radbakhsh, Kamyab Zandi, Mazdak Nik-Bakht [Concordia University, Chalmers University of Technology]	490
11:00~11:20	**Vibration based damage identification in welded asymmetrical steel frames using regularization techniques** Mayank Kamal, Sauvik Banerjee [Indian Institute of Technology Bombay, Mumbai]	84
11:20~11:40	**Structural Damage Detection through Finite Element Model Updating using Evolutionary Algorithm** Sai Siddhartha Vivek Dhir Rangoju, Govardhan Polepally, Prafulla Kalapatapu, Venkata Dilip Kumar Pasupuleti [Mahindra University]	179
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10:20~10:40	**A decision framework for selecting information-transfer strategies in population-based SHM** Aidan Hughes, Jack Poole, Nikolaos Dervilis, Paul Gardner, Keith Worden [The University of Sheffield]	242
10:40~11:00	**Enhancing Structural Health Monitoring with Machine Learning and Data Surrogates: A TCA-based Approach for Damage Detection and Localisation** Raja Sekhar Battu, Konstantinos Agathos, Evangelos Papatheou [Department of Engineering, University of Exeter, North Park Road, EX4 4QF, Exeter, UK]	251
11:00~11:20	**On the use of model-based versus data-based approaches for virtual sensing in SHM** Evangelos Papatheou, Konstantinos Tatsis, Konstantinos Agathos, Marcus Haywood-Alexander, Nikolaos Dervilis, Keith Worden [University of Exeter]	261
11:20~11:40	**Sharing Information Between Machine Tools to Improve Surface Finish Forecasting** Daniel Clarkson, Lawrence Bull, Chandula Wickramarachchi, Tina Dardeno, Tim Rogers, Elizabeth Cross, Keith Worden, Nikolaos Dervilis, Aidan Hughes [The University of Sheffield]	83
11:40~12:00	**Large-span bridge strain reconstruction based on bidirectional LSTM and ESN** Yan-Ke Tan, Yu-Ling Wang, Yi-Qing Ni, Qi-Lin Zhang, You-Wu Wang [Department of Civil and Environment Engineering, The Hong Kong Polytechnic University]	17
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13:50~14:10	**Augmented Reality with Live Video Streaming for Beyond Visual Line of Sight Inspection of a Steel Bridge** Joel Murithi Runji, Genda Chen [Missouri University of Science and Technology]	465
14:10~14:30	**Monitoring of freezing water or melting ice in aircraft fuel tanks and fuselages by acoustic emission** Helge Pfeiffer, David Seveno, Johan Reynaert, Pieter Jan Jordaens, Özlem Ceyhan, Martine Wevers [University of Leuven]	474
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14:50~15:10	**Autonomous Robotic Inspection based on Active Vision and Deep Reinforcement Learning** Wen Tang, Mohammad Jahanshahi [Purdue University]	392
15:10~15:30	**Curing monitoring of composite patch using electromechanical impedance** Jinshan Wen, Jianjian Zhu, Yishou Wang, Xinlin Qing [School of Aerospace Engineering Xiamen University]	319

Civil Structures VI Session Chair: Prof. Andrei Zagrai, Prof. Shota Urushadze, Dr. Charikleia Stoura Location: 420-040 (Jordan Hall)		
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13:50~14:10	**Evaluation of Electro-Mechanical Impedance (EMI) for Structural Health Monitoring (SHM) of Post-Tensioned Ground Anchors** Clayton Thurmer, Jason Ray, Matthew Glasscott, Brian Eick [US Army Engineer Research and Development Center, Information Technology]	389
14:10~14:30	**Vehicle and Truss Bridge Interaction Adopting a Simplified 2D Model** Shahed Jafarpour Hamedani, Mehrisadat Makki Alamdari, Elena Atroshchenko, Kai-Chun Chang, Chul-Woo Kim, Andres Felipe Calderon Hurtado [Centre for Infrastructure Engineering and Safety, School of Civil and Environmental Engineering, University of New South Wales]	321
14:30~14:50	**Structural Health Monitoring of CFRP Propellers by Piezoelectric Line Sensors** Ryota Hamada, Takafumi Ogura, Shogo Fujita, Hideaki Murayama, Toshio Yamatogi, Toshiyuki Inoue, Kazuya Hayashi, Mai Takahara, Kentaro Goto, Kotaro Furukawa [The University of Tokyo]	98
14:50~15:10	**Design and application of a statistical learning methodology to remove temperature effect on static signals for bridge structural health monitoring** Lorenzo Benedetti, Francesco Morgan Bono, Luca Radicioni, Marco Belloli [Politecnico di Milano]	483

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13:50~14:10	**Vertical System Identification of a 52-Story High-Rise Building Using Seismic Accelerations** Viviana Vela, Ertugrul Taciroglu, Monica Kohler [University of California, Los Angeles]	178
14:10~14:30	**Physics-informed neural networks for system identification of structural systems with a 29ultiphysics damping model** Tong Liu, Hadi Meidani [University of Illinois at Urbana-Champaign]	297
14:30~14:50	**Improving Hybrid Model Accuracy for Structural Analysis: The Effects of Parameterized Joint Stiffness on System Equivalent Model Mixing** Kang-Jae Park, Yong-Hwa Park [Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology]	157

SPECIAL SESSION: Recent Advances on Data Processing Techniques for Ultrasonics-based SHM/NDE I Session Chair: Prof. Salvatore Salamone, Prof. Sebastian Schmid Catarineu, Prof. Bin Xu Location: Hewlett 200		
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13:50~14:10	**Study of the guided wave sensing by hybrid piezoelectric-FBG approach** Sultan Ahamad, Pawel Malinowski, Rohan Soman, Tomasz Wandowski [Institute of Fluid Flow Machinery, Polish Academy of Sciences]	111
14:10~14:30	**Optoacoustics-based Nanoscopic Characterization of Semiconductors Using Gigahertz Surface Phonons** Yi He[1], Hoon Sohn[2], Osamu Matsuda[3] and Zhongqing Su[1] [The Hong Kong Polytechnic University[1], Korea Advanced Institute of Science and Technology[2], Hokkaido University[3]]	310
14:30~14:50	**Damage identification in concrete using deep learning technique on nonlinear ultrasonic wave** Tonghao Zhang, Didem Ozevin [University of Illinois Chicago]	292
14:50~15:10	**Experimental study on debonding detection for grouted jacket connection of an off-shore wind turbine supporting structure specimen with PZT patches** Qian Liu, Bin Xu, Xinhai Zhu, Jiang Wang, Wei Hu [Huaqiao University]	70

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13:50~14:10	**High-Resolution Vision Transformers for Pixel-Level Identification of Structural Components and Damage** Kareem Eltouny, Seyedomid Sajedi, Xiao Liang [University at Buffalo]	356
14:10~14:30	**Structural nonlinearity extraction from video data for damage evaluation in earthquake events: Experimental verification** Sifan Wang, Mayuko Nishio [Department of Engineering Mechanics and Energy, University of Tsukuba]	346
14:30~14:50	**Integrated technology for detection and repair of mechanical component surface fatigue microcracks using pulsed laser** Jun He, Qichao Cheng, Daming Zhuange, Shixi Yanga [Zhejiang University]	349
14:50~15:10	**Real-Time Crack Detection in Bridges Using Monitoring and Machine Learning – Verified with an Actual Damage Case** Imane Bayane, Jacob Nyman, Jens Häggström, John Leander [KTH-Royal Institute of Technology]	456
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13:50~14:10	**Automatic and high-precision acoustic emission-based structural health monitoring** Seyyedmaalek Momeni, Thomas Schumacher, Lindsay Linzer, Brice Lecampion [Swiss Federal Institute of Technology Lausanne (EPFL)]	194
14:10~14:30	**Acoustic Emission Monitoring of Pre-Stressed Concrete Beams During Accelerated Corrosion of Pre-Stressing Tendons** Sadegh Mahmoudkhani, Junhui Zhao, Jasmin Cochingco, Aftab Mufti, Douglas Thomson [Department of Electrical and Computer Engineering, University of Manitoba]	258
14:30~14:50	**Acoustic emission source location using Bayesian 31ocalization for a composite helicopter blade** Christopher Lindley, Matthew Jones, Tina Dardeno, Robin Mills, Nikolaos Dervilis, Keith Worden [University of Sheffield]	266
14:50~15:10	**Acoustic emission source 31ocalization in fiber-reinforced composites based on multimodal dispersion compensation of guided waves** Arnaud Huijer, Christos Kassapoglou, Lotfollah Pahlavan [Delft University of Technology]	301
15:10~15:30	**Applicability of data augmentation through variational autoencoder for two-dimensional acoustic emission source discrimination on hollow cylindrical structures** Guan-Wei Lee, Stylianos Livadiotis, Salvatore Salamone [University of Texas at Austin]	137

GUIDED WAVES VI Session Chair: Prof. Rakesh Kapania, Dr. Nazih MECHBAL Location: 380-380D		
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13:50~14:10	**Experimental and numerical investigations on the acoustoelastic effect on Lamb waves in aluminum** Tilmann Barth, Natalie Rauter, Rolf Lammering [Helmut-Schmidt-University / University of Federal Armed Forces]	461
14:10~14:30	**An Integrated Acousto-Mechanical Energy Approach for Monitoring Flexural Bond-Slip Behaviour of GFRP Bars and Concrete** Amer Iliyas Rather, Sauvik Banerjee, Arghadeep Laskar [Indian Institute of Technology, Bombay]	16
14:30~14:50	**Damage detection in ultrasonic guided wave testing of composite structures using statistical features** Shruti Sawant, Sauvik Banerjee, Amit Sethi [Indian Institute of Technology, Bombay]	181

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13:50~14:10	**Unsupervised Vehicle Classification through a MEMS accelerometers SHM system** Amirhossein Moallemi, Luca Zanatta, Alessio Burrello, Mattia Salvaro, Monica Longo, Paola Darò, Francesco Barchi, Davide Brunelli, Luca Benini, Andrea Acquaviva [Universitá Di Bologna]	164
14:10~14:30	**Exploring Crowdsensing potentials for Structural Health Monitoring applications: Challenges and Opportunities** Leonardo Lacussi, Matteo Brambilla, Paolo Chiariotti, Stefano Manzoni, Alfredo Cigada [Politecnico di Milano]	252
14:30~14:50	**Certification of CVM Sensors for Monitoring 737 Aft Pressure Bulkhead** Trevor Lynch-Staunton, Brian Shaigec, Dennis Roach, Derrick Formosa [Anodyne Electronics Manufacturing]	386
14:50~15:10	**A original Smart Data Sampling for wireless sensor. Application to bridge cable monitoring** Vincent Le Cam, Laurent Lemarchand, Arthur Bouche, David Pallier, François Illien [University Gustave Eiffel]	471
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13:50~14:10	**Magnetic-driven 3D-printed Biodegradable swimming microrobots** Jingfan Chen, Hanwen Hu, Ya Wang [Texas A&M University]	150
14:10~14:30	**Fluorescence-based fiber optic sulphate sensor for long term sulphate ion monitoring in concrete structures** Zhen Lin, Yi-Qing Ni, Tong Sun [The Hong Kong Polytechnic University]	106
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14:10~14:30	**Faa Structural Health Monitoring Research Program And Results From Various Tests** Danielle Stephens, Paul Swindell, Yongzhe Tian, Walter Sippel, Seth Kessler, Amrita Kumar, Susheel Kumar Yadav, Franklin Li [FAA]	419
14:30~14:50	**Inspection and Maintenance Scheme Optimization Considering Atmospheric Corrosion Using Dynamic Bayesian Network** Taesu Choi, Dooyoul Lee [Korea National Defence University]	289
14:50~15:10	**Performance of a Novel Inerter-Based Isolation System for Medium-Rise Buildings under Seismic and Wind Excitations** Jubin Lu, Songye Zhu [Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University]	186

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13:50~14:10	**Hierarchical Bayesian modelling of a family of FRFs** Tina Dardeno, Lawrence Bull, Robin Mills, Nikolaos Dervilis, Keith Worden [University of Sheffield, University of Cambridge]	206
14:10~14:30	**Towards Multilevel Modelling of Train Passing Events on the Staffordshire Bridge** Lawrence Bull, Chiho Jeon, Mark Girolami, Andrew Duncan, Jennifer Schooling, Miguel Bravo Haro [University of London, University of Cambridge]	216
14:30~14:50	**Predicting Axial Stress in Continuous Welded Rails using Machine Learning** Matthew Belding, Alireza Enshaeian, Piervincenzo Rizzo [University of Pittsburgh]	254
14:50~15:10	**Bayesian damage identification in composites using in-situ operational data and physics-based modelling data** Abhishek Kundu [Cardiff University]	210
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