INC 2019

18-21 November 2019
Edinburgh International Conference Centre, UK

Programme

Version: 8 October 2019

Programme may be subject to change.

Pre-Conference Meetings & INC Welcome Reception

Mon 18 Nov	Lammermuir Suite
08:30 - 17:00	**Training: Securing Positioning & Timing** Please book separately at https://rin.org.uk/event/securing_pnt_training

18:00 - 19:30	**Social: icebreaker drinks at** *Akva*

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Tue 19 Nov	Plenary & Stream A: Kilsyth and Moorfoot	Stream B: Tinto
08:30	Welcome Tea & Coffee in Lennox Suite (Speakers: Briefing in Soutra)	
09:00 - 10:25	PLENARY 1	
09:00	Welcome: John Pottle, Director RIN	
09:10	Keynote 1.1: Prof Terry Moore, The University of Nottingham and President of the Royal Institute of Navigation	
09:35	Keynote 1.2: Prof Shelia Rowan, Chief Scientific Advisor to Scotland	
10:00	Keynote 1.3: Mike Bullock, CEO Northern Lighthouse Board	
10:25 - 11:10	Coffee Break & Networking: Lennox Suite	
11:10 - 12:25	Session A1: Innovative Navigation Solutions 1	Session B1: Resilient PNT 1
11:10	Paper A1.1 Evgenii Munin, Multipath detection at GNSS correlator output using image processing by Convolutional Neural Network	Paper B1.1 Roi Mit, Behind The Scenes of The Tesla Spoofing Experiment and Important Lessons for Autonomous Systems Utilizing GNSS.
11:35	Paper A1.2 Asghar Abbas Razzaqi, Optimal geometric configuration of sensors for received signal strength based cooperative navigation of AUVs	Paper B1.2 Matt Jones, Aided Signals of Opportunity in Realistic Environments
12:00	Paper A1.3 Thomas Verheyde, Statistical Analysis of Android GNSS Raw Data Measurements in an Urban Environment for Smartphone Collaborative Positioning Methods.	*Paper B1.3 tbd*
12:25 - 13:25	Lunch Break & Networking: Lennox Suite	

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13:25 - 14:55	**PLENARY 2:**
13:25	Keynote 2.1: Dana Goward, President, Resilient Navigation and Timing Foundation
14:10	Keynote 2.2 : Dr Miriam Liedvogel, Chair RIN Animal Navigation Group / Max Planck Research Group Leader, Max Planck Institute for Evolutionary Biology
14:55 - 15:25	Coffee Break: Lennox Suite

	Session A2: Animal Navigation	**Session B2: Innovation in Land Vehicle Navigation**
15:25 - 16:40		
15:25	Paper A2.1 Brian Taylor, Energetic Analysis of Tagged Sea Turtles Using Geomagnetic Navigation	Paper B2.1 Smita Tiwari, Multi-GNSS Real-Time Precise Positioning and Heading for Autonomous Robot Applications in Agriculture
15:50	Paper A2.2 Margarita Zaleshina, Identification of sustainable locations in pigeon flights using flow simulation method	Paper B2.2 Mireille Elhajj, Impact of new GPS signals on the positioning accuracy for urban bus operations

16:15-17:00	**PLENARY 3:**
16:15	Keynote 3.1: Prof Todd Humphreys - GNSS Radio Frequency Interference Detection from Low Earth Orbit
17:00 – 17:10	Coffee Break & Networking: Lennox Suite

18:15 - 19:30	**Social: drinks reception in the National Museum of Scotland**

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Wed 20 Nov	Plenary & Stream A: Kilsyth and Moorfoot	Stream B: Tinto
08:30	Welcome Tea & Coffee in Lennox Suite (Speakers: Briefing in Soutra)	
09:00 - 10:40	PLENARY 4 :	
09:00	Welcome & Introductions :	
09:10	Keynote 4.1: Paul Dudchenko, Stirling University	
09:55	Keynote 4.2: Diana Furchtgott-Roth, Deputy Assistant Secretary for Research and Technology, U.S. Department of Transportation	
10:40 - 11:10	Coffee Break & Networking: Lennox Suite	
11:10 - 12:25	Session A3: Resilient PNT 2	Session B3: Human Navigation
11:10	Paper A3.1 Alan Grant, Balancing integrity with continuity of maritime navigation in a multi-system receiver and the need for future, realistic maritime performance requirements	Paper B3.1 Colette Jeffrey, Human Indoor Navigation: why people get lost inside buildings
11:35	Paper A3.2 Martin Bransby, Maritime cyber-security - what is the problem and what can be done about it?	Paper B3.2 Chloe Jackson, Where am I? A video-based investigation into drivers' orientation strategies.
12:00	Paper A3.3 Michael Hoppe, R(anging)-Mode: A potential terrestrial navigation system for maritime usage	Paper B3.3 Daniel Lyngholm, Sensing Navigation - the Era of the Enhanced Human
12:25 - 13:25	Lunch Break & Networking: Lennox Suite Poster Session: Lennox Suite	

Posters	
P1	Asya Natapov: Semantics of Urban Space
P2	Alice Morrell: Measuring Position Accuracy Using a Lightweight GNSS and Inertial Measurement Unit Device for Studying Animal Navigation
P3	Maryam Bandukda: An inquiry of open space wayfinding for people with severe sight loss
P4	Raffaela Cefalo: Innovative navigation solutions using GNSS integrated by INS applied to special aerial plants
P5	Shlomi Voro: Autonomous navigation at night and day using Lunar Distance Celestial method based upon light polarization.

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13:25 - 14:55	**PLENARY 5 :**	
13:25	Keynote 5.1: Prof Barbara Webb, University of Edinburgh	
14:10	Keynote 5.2: Andy Proctor, GNSS Technical Director, UK Space Agency	
14:55 - 15:25	Coffee Break & Networking: Lennox Suite	
15:25 - 16:40	**Session A4: Innovative Navigation Solutions 2**	**Session B4: Resilient PNT 3**
15:25	Paper A4.1 Janusz Adamson, The Use of Pulsars for Ship Navigation - an alternative to the Sextant	Paper B4.1 Talini Pinto Jayawardena, On the need for the simulation of ionospheric scintillation of GPS signals and challenges encountered in developing a framework for resilient PNT testing under ionospheric threats
15:50	Paper A4.2 Thomas Porathe, Ship Traffic Management and Traffic Organization Service with Moving Havens	Paper B4.2 Michael Holynski, Cold atom gravity gradiometry for alternative navigation
16:15	Paper A4.3 Hery Mwenegoha, Error Characteristics of a Model-based Integration Approach for fixed wing Unmanned Aerial Vehicles	Paper B4.3 Malcolm Macleod, Low power spoofing detection - techniques and limitations
16:40 - 16:50	Coffee Break: Lennox Suite	
16:50 - 17:40	**PLENARY 6 :**	
16:50	Keynote 6.1: Prof Jade Morton, President of the Institute of Navigation (ION), University of Colorado Boulder	
17:30 – 17:40	Dr Pierluigi Mancini, European Space Agency	

18:00 - 19:30	**Social: drinks reception in the exhibition hall of the EICC (Conference Venue) – Sponsored by NSL**

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Thu 21 Nov	Plenary & Stream A: Kilsyth and Moorfoot	Stream B: Tinto
08:30	Welcome Tea & Coffee in Lennox Suite (Speakers: Briefing in Soutra)	
09:00 - 10:40	PLENARY 7 :	
09:00	Welcome & Introductions :	
09:10	Keynote 7.1: Tommy Cook, CEO Calnex Solutions	
09:55	Keynote 7.2:	
10:40 - 11:10	Coffee Break & Networking: Lennox Suite	
11:10 - 12:25	**Session A5: Innovative Navigation Solutions 3**	**Session B5: Resilient PNT 4**
11:10	Paper A5.1 Jonghyuk Kim, Compressed Pseudo-SLAM: Pseudoranges-Integrated Compressed SimultaneousLocalization and Mapping for UAV Navigation	Paper B5.1 Yuval Bar Yossef, An advanced GNSS record and playback system optimized for indoor testing of resilient GALILEO receivers on E6/E5ab bands
11:35	Paper A5.2 David Bowers, Mobile AR navigation: promising innovation, or misplaced trust?	Paper B5.2 Evangelos Mellios,A Novel High-Performance Compact Helical Dielectrically-Loaded Antenna Technology for GNSS Applications
12:00	Paper A5.3 Brian Taylor, Bioinspired trans-equatorial navigation using sequential measurements of magnetic inclination	Paper B5.3 Barend Lubbers, GNSS spoofing detection using two receivers in a very short unknown baseline
12:25 - 13:25	Lunch Break & Networking: Lennox Suite	
13:25 - 14:50	PLENARY 8 :	
13:25	Keynote 5.1: Suzanna Jones & Rob Handley, DSTL	
14:10	Keynote 8.2: Andy Sage, NATS Drone Lead	
14:50 - 15:30	Panel Discussion	
15:30 - 15:40	Conference Summary and Close: Prof. Terry Moore, President Royal Institute of Navigation	

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