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### LOOM members in 2022

Dr. David R. Allanson (DRA)  
Dr. Milad Armin (MA)  
Dr. Ariyan Ashkanfar (AA)  
Dr. Musa Bashir (MB)  
Dr. Eddie Blanco-Davis (EBD)  
Dr. Alan Bury (AB)  
Dr. Chia-Hsun Chang (CHC)  
Dr. Robert Darlington (RD)  
Prof. Stephen Fairclough (SF)  
Dr. Fang Bin Guo (FBG)  
Prof. Ian Jenkinson (IJ)  
Dr. Karl Jones (KJ)  
Abdul Khaliq (AK)  
Dr. Mohamed Kara-Mohamed (MKM)  
Dr. Christos Kontovas (CK)  
Dr. Sean Loughney (SL)  
Dr. Sean Makleson (SM)  
Dr. Dante Ben Matellini (DBM)  
Dr. Christian Matthews (CM)  
Dr. Marco Messina (MM)  
Prof. Trung Thanh Nguyen (TTN)  
Dr. Dimitrios Paraskevadakis (DP)  
Dr. Robyn Pyne (RP)  
Dr. Jun Ren (JR)  
Dr. Mehdi Seddighi (MS)  
Dr. Ava Shahrokhi (AS)  
Prof. Jin Wang (JW)  
Prof. Zaili Yang (ZY)  
Dr. Qian Zhang (QZ)

### Other members involved in PhD supervision at LOOM

Prof. J. Branke (JB), Warwick University  
Dr. A Bras (AB), LJMU  
Dr. I. Carnacina (IC), LJMU  
Mr. P. Davies (PD), LJMU  
Prof. L. Han (LH), Manchester Metropolitan University  
Dr. P. Johnson (PJ), LJMU  
Prof. R. Larek (RL), Univ. of Applied Sci., Germany  
Prof. S. Nazir (SN), Univ. College of Southeast Norway  
Prof. A. Ng (AN), University of Manitoba, Canada  
Dr. Z. Qu (ZQ), LJMU  
Dr. R. Riahi (RR), Columbia Shipmanagement, Germany  
Dr. M. Sadique (MSa), LJMU  
Prof. S. Yang (SY), De Montford University  
Prof. Y. Yang (YY), Ningbo University, China

### LOOM researchers in 2022

#### Doctoral/postdoctoral researchers

R. Abdulkadir  
A. Al Bastaki  
Dr. Z. Bartlett  
A. Burgess  
J.B. Campbell  
J. Canas  
S. Charkoutsis  
O. Chukwuka  
T. Cottage  
J. Cutler  
Dr. S.Q. Fan  
J. Ford  
S. Gbako  
A. Gugusa  
A. Habib  
D. Hitchmough  
N. Horne  
B. Ishaya  
M. Jenkins  
B.S. Jones  
C. Jones  
S. Jones  
L. Kamalian  
N. Karimalis  
Dr. B. Kelly  
A. Khaliq  
H. Khansaheb  
T. Larsen  
Dr H. Li  
Miss X. Liang  
Dr. A. Makki  
Dr. O. Maklad  
M. Moammer  
H. Mohamed  
T. Morris  
K. Morrison  
Dr. I. Nawaz  
L.C. Newton  
D. Nwosu  
T. Onasanya  
C. Park  
C. Pitt  
Dr C.P. (Mark) Poo  
J. Reed-Jones  
R. Ren

Z. Saleh  
O. Salih  
M. Sanousi  
Dr. M. Seddiq  
Dr. E. Shaw  
H. Sivori  
L Speed  
A. Spiteri  
S. Stroud  
M. Stringfellow  
Dr. S. Symes  
Dr. P. Taylor  
S. Toh  
G. Tsapparellas  
P. Ugedi  
S. Waddington  
Dr. R. Wang  
Dr. Y. Wang  
A. Withington  
X. Xin  
Mr. V. Yalagala  
B. Yu  
X. Zhan  
J. Zhang

#### Visiting researchers

U. Asgher  
Q. Liu  
K. Shi  
T. Thongboonpian  
C. Wang  
Ms P. Yodsurang  
Dr. M. Bin Hasnan  
Dr. M.F. bin Abdul Hamid  
M.R. Bin Jalal  
Prof. Ab S. bin Abd Kader  
Dr. N. Shaharuddin  
Prof. M.N. Bin Tamin  
Dr. Z. Xu

#### Visiting professors

RAEng Visiting Professor  
Tony Graham,  
Blueportfolio

It has been identified that the LOOM's research emphasis in 2023 is:

1. To further develop national and international collaboration.
2. To ensure sustainable research income growth.
3. To enhance on research output quality and research impact generation.
4. To continue to generate significant impact arising from underpinning research.
5. To enhance research infrastructure.

## A global reputation for excellence

Most members in LOOM were returned to the [Research Excellence Framework \(REF\) 2021](#) for assessing the quality and impact of research in UK universities. Over 20 members in LOOM were returned to [Unit of Assessment 12 \(Engineering\)](#). Research in Engineering at Liverpool John Moores University was judged to be 92% ‘world leading’ or ‘internationally-excellent’. [The research outputs](#) were rated 96% world-leading or internationally excellent. The research impact was rated 100% world-leading or internationally excellent. LOOM led [two of the four impact case studies](#) in the submission (“The risk-based design and operation of large marine engineering systems” and “A decision-support system for transportation and logistics”).

### 1. Research publications (published in 2022)

The following are the outputs published in 2022 (for details, see Appendix 1):

- 3 book chapters.
- 53 SCI-cited refereed journal papers (incl. ESCI).
- 24 refereed conference papers.
- 2 other journal papers.
- 2 other publications.
- 3 research informed teaching case studies.

### 2. Doctoral, postdoctoral and international research visiting projects (completed, on-going and started in 2022)

#### 2.1 Research projects completed in 2022

##### PhD projects

1. Dr. Z. Bartlett, “The Prediction and Mitigation of Road Traffic Congestion Based on Machine Learning” (2017-2022), jointly funded by LJMU and MMU scholarships. (LH, TTN, PJ)
2. Dr. I. Nawaz, “Risk-based verification of offshore installations on the United Kingdom continental shelf” (2012-2022), funded by Lloyd’s Register. (DBM, *et al.*)
3. Dr. E. Shaw, “Investigation and analysis into the current status and future direction relating to the application of complex computer technology for safety-critical systems in the marine sector” (2017-2022), funded by LJMU scholarship. (DBM, *et al.*)
4. Dr. S. Symes, “Ship simulator-based seafarers’ skill acquisition incorporating the use of Functional-Infrared Spectroscopy (fNIRS)” (2017-2022), funded by LJMU scholarship. (ZY, *et al.*)
5. Dr. P. Ugedi, “Assessing the effectiveness and implementation of the SOLAS Verified Gross Mass (VGM) Regulation” (2016-2022), funded by the Faculty and the Nigerian Maritime Administration and Safety Agency. (CK, *et al.*)

##### Postdoctoral projects

6. C. Jones, “Cloud-based data analytics for the LJMU Smart Green Dashboard”, (2022), funded by LJMU. (TTN, *et al.*)
7. Dr. A. Makki, “Surveying and analysing sensor data for sustainable travel” (2021-2022), funded by UKRI. (TTN, *et al.*)
8. Dr. A. Makki “Sensor data analysis” (2022), funded by LJMU. (TTN, *et al.*)
9. Dr. M. Seddiq, “Development of next generation of Anilox Rolls and Sleeves” (2019-2022), funded by InnovateUK. (MS, *et al.*)
10. Dr. E. Shaw, “Risk-based specifications of portable power packs for different applications part 2” (2021-2022), funded by the Ministry of Defence via QinetiQ. (MB, *et al.*)
11. Dr. Y. Wang, “Emergency decision support system of offshore platform fires” (2020-2022), funded by EU. (JW, *et al.*)
12. A. Withington, “User interface design for passenger assist in railway applications” (2021-22), funded by UKRI. (TTN, *et al.*)
13. G. Tsapparellas, “IoT sensors for 15-minute city” (2021-2022), funded by EPSRC Decarbon8. (TTN, *et al.*)

##### Visiting research projects

14. Dr. Muhammed Amirul Asyraf Bin Hasnan, “Load estimation on the ship dynamic motion and floating structure in regular waves and irregular waves”, funded by Royal Academy of Engineering, Sept. to Oct. 2022. (MB, *et al.*)
15. Dr. Mohd Foad bin Abdul Hamid, “Reliability analysis of large maritime engineering systems”, funded by EU, Oct. to Dec. 2022. (AS, *et al.*)
16. Mohd Rajali Bin Jalal, “Reliability and Safety Engineering Technology for large maritime engineering systems”, funded by EU, Oct. to Dec. 2022. (SL, *et al.*)
17. Prof. Ab Saman bin Abd Kader, “Costs, benefits and sustainability of waterways”, funded by EU, Nov. to Dec. 2022. (EBD, *et al.*)
18. Dr. Nik Mohd Ridzuan Bin Shaharuddin, “Safety and reliability analysis of offshore structures”, funded by Royal Academy of Engineering, Sept. to Oct. 2022. (MA, *et al.*)
19. Prof. Mohd Nasir Bin Tamin, “Reliability analysis of large maritime engineering systems with case studies”, funded by EU, Oct. to Dec. 2022. (MS, *et al.*)
20. Z. Xu, “Development of data mining techniques for structural health monitoring of offshore wind turbines” (10/2021 - 10/2022), funded by China Scholarship Council. (MB, *et al.*)

#### 2.2 On-going research projects in 2022

##### Doctoral projects

21. R. Abdulkadir, “Supply chain integration: empirical evidence from Kaduna State public health supply chains” (2020-2204). (BM, *et al.*)
22. A. Burgess, “Computational & Physical Modelling of the Physics of Powder Flow during Additive Manufacturing” (2021-2024). (SM, *et al.*)
23. J. B. Campbell, “A study of turbulence and heat transfer in pulsating flows” (2019-2023), funded by LJMU FET Scholarship. (MS, *et al.*)
24. J. Canas “Computational finite element and wear analyses for shoulder joint replacements” (2021-2024). (AA, *et al.*)

25. S. Charkoutsis, "Optimization of Nonlinear PID Controller for Nonlinear Robotic Systems" (2021-2024), University Fund. (MKM, *et al.*)
26. O. Chukwuka, "Risk analysis for emergency supply chain with particular focus on intermodal transport" (2019-2022), funded by the Faculty and the Nigerian Maritime Administration and Safety Agency. (JR, *et al.*)
27. T. Cottage, "Novel disruptive mixing strategies for industrial applications" (2021-2024), funded by the faculty. (SM, *et al.*)
28. J. Cutler, "Performance Evaluation of a Combined Floating Offshore Energy System (CFOES) in Operational and Extreme Conditions" (2019-2023), funded by LJMU Scholarship. (MB, *et al.*)
29. J. Ford, "Sustainability in the decommissioning process of UK offshore installations and the management of hazardous waste" (2021-2025). (SL, *et al.*)
30. S. Gbako, "Benchmarking the current state of the art of Inland Waterways" (2019-2023). (DP, *et al.*)
31. A. Gugusa, "Analysis of cold chain logistics performance in the floriculture industry: The case of Ethiopian Floriculture", funded by Kuhne Foundation. (IJ, *et al.*)
32. A. Habib, "Analysis of Sustainable Supply Chain Management (SSCM) practice in the Ethiopian coffee supply chain" (2020-2023). (JR, *et al.*)
33. D. Hitchmough, "Hull-Propeller interaction on ships using Air Lubrication: A study into enhancing ship design and construction for an environmentally efficient operation" (2021-2025). (EBD, *et al.*)
34. B. Ishaya, "A risk assessment framework on the prevention and management of modern-day slavery in global supply chain" (2020-2024). (DP, *et al.*)
35. M. Jenkins, "An investigation and evaluation of workplace substance misuse programmes and compliance with drug and alcohol policy" (2019-2024). (DBM, *et al.*)
36. S. Jones. "Reciprocity and Mutuality: A Study into the Emergence of a New Maritime Economy in the Liverpool City Region (2019-2022). (IJ, *et al.*)
37. N. Karimalis, "The Effect of Management Standards and Systems on Greek Shipping Companies (As an Extension of Corporate Governance Practices)" (2021 - 2028). (SL, *et al.*)
38. A. Khalique, "Eliminating instrumental distractions on ship's bridge to improve OOW's situational awareness focus", (2019-2026). (EBD, *et al.*)
39. H. Khansaheb, "Solutions to the sedimentation and maintenance of semi-enclosed channels (2019-2022). (IJ, *et al.*)
40. T. Larsen. "Development of framework for reliability and survivability of Wave Energy Converters (WECs)" (2021 – 2024). (MB *et al.*)
41. X. Liang, "Sustainability Freeports" (2021-2023). (ZY *et al.*)
42. M. Moammer, An evaluation of risk methodologies and framework for building a smart port (2021-2024), funded by Libyan Government. (MB, *et al.*)
43. Miss K. Morrison, "Voice tampering, alterations and audio deepfakes: standardisation of detection methods" (2019-2022). (KJ, *et al.*)
44. L.C. Newton, "Investigating turbulent-turbulent transition of transient flow over smooth and rough surfaces" (2019-2023), funded by LJMU FET Scholarship. (MS, *et al.*)
45. T. Onasanya, "Investigation of wall shear stress and flow behaviour in pulsating blood flows in large arteries", funded by LJMU FET Scholarship (2021-2025). (MS, *et al.*)
46. C. Park, "Cybersecurity risk assessment in the maritime industry" (2019-2022). (CHC, *et al.*)
47. C. Pitt, "Total Knee replacement; why they fail prematurely and how to increase their lifespan?" (2021-2024). (AA, *et al.*)
48. J. Reed-Jones, "Binaural Sound Localisation for Smart Sensors using Hybrid Neural Networks" (2019-2022), funded by LJMU Scholarship. (KJ, *et al.*)
49. R. Ren, "Development of a novel risk management system for cold chain packaging" (2020-2023). (JR, *et al.*)
50. O. Salih, "Investigation of an intelligent shunt for Hydrocephalus monitoring" (2018-2022). (MM, *et al.*)
51. Z. Saleh, "Unsteady CFD Simulation of Offshore Floating Wind Turbines in Platform Motions" (2021-2024). (AS, *et al.*)
52. M. Sanousi, "Methodologies and framework for developing a smart port" (2021 -2025). (MB *et al.*)
53. Miss H. Sivori, "Maritime Simulation-based stress-induced analysis and mitigating methods while applying functional near-infrared spectroscopy (fNIRS)" (2019-2023), funded by a FET scholarship. (EBD, *et al.*)
54. L. Speed, "Digitally unsmudging fingerprints using forensic software" (2021-2026), part-time. (KJ, *et al.*)
55. A. Spiteri, "A novel design to induce a passive air layer under ships to reduce viscous drag" (2019-2023). (MA, *et al.*)
56. M. Stringfellow, "An Evaluation of the Attainment of Students Based on the Adjustment of Key Variables Within Technical and Vocational Training (TVET)" (2021-2025), EngD, supported by SkillSea. (IJ, *et al.*)
57. S. Toh, "Computational wear prediction for orthopaedic applications" (2019-2023). (AA *et al.*)
58. S. Waddington, "Probabilistic risk analysis of Wind Array and Offshore Giga-Watt (GW) Scale Offshore Centralized Production Green Hydrogen (GH2) Facilities" (2019-2024). (JW, *et al.*)
59. Miss B. Yu, "Interface and Interaction: A Design-Oriented Research for Maritime Service Design" (2021-2024). (FBG, *et al.*)
60. Miss X. Zhan, "A design-led research project in urban regeneration: How environmental psychology can help in restructuring the post-industrial landscape" (2019-2023). (FBG, *et al.*)

#### *On-going postdoctoral project*

61. Dr. S. Fan, "Human reliability analysis" (2021-2024), funded by ERC. (ZY, *et al.*)
62. C. Jones, "Analysing sensor data for promoting active travel in the LCR" (2021-2022), funded by DfT via LCR CA. (TTN, *et al.*)
63. Dr H. Li, "Autonomous ship risk analysis" (2021-2023), funded by ERC. (ZY, *et al.*)
64. Dr. O. Maklad & Dr P. Taylor, "On the Development of a Novel Approach in Modelling of Turbulent Pulsating Flows" (2020-2023), funded by EPSRC. (MS, *et al.*)
65. Dr. M.C. Poo "Blue Economy" (2020-2023), funded by ERDF. (ZY, *et al.*)
66. Z. Xu, "Development of data mining techniques for structural health monitoring of offshore wind turbines" (10/2021 - 10/2022), funded by China Scholarship Council. (MB, *et al.*)

#### *On-going visiting research projects*

67. Prof. T. Graham, "Marine Technology and Project Management", Visiting Professorship funded by Royal Academy of Engineering (2021-2024). (JW)

## 2.3 Research projects started in 2022

### Doctoral projects

68. Al Bastaki, Anwar “Novel framework for energy management of solar and nuclear plants in the UAE” (2022-29). (EBD, *et al.*)
69. L. Kamalian, “Climate change and its impact on container transport sustainability” (2022-24), funded by ERC. (ZY *et al.*)
70. Miss B.S. Jones, “Robustness of the UK Criminal Justice System to advances in audio/video technology” (2022-2025). (KJ, *et al.*)
71. H. Mohamed, “A multi-criteria decision-making framework for energy management of a hybrid solarwind- hydrogen power plant (2022-26). (EBD, *et al.*)
72. D. Nwosu, “Reliability Framework for Renewable Energy Mini-Grids Development” (2022-2025). (MB *et al.*)
73. S. Stroud, “Audio Zooming Aligned with Video Zoom in a Drone Surveillance System for Police Forensic Evidence Gathering” (2022-2025)/ Funded by LJMU Scholarship. (KJ, *et al.*)
74. X. Xin, “Maritime traffic partitioning in complex waters” (2022-24), funded by LJMU and CSC. (ZY *et al.*)
75. J. Zhang, “Container transport resilience” (2022-24), funded by ERC. (ZY *et al.*)

### Postdoctoral projects

76. Mr. N. Horne “Mobile application development and application on active travel” (2022-23), funded by DfT via LCR CA. (TTN, *et al.*)
77. Dr. A. Makki, “Generating impact from LJMU research on optimisation, simulation and sensors” (2022-23), funded by UKRI. (TTN, *et al.*)
78. Dr. S. Symes, “Reducing Maritime Emissions” (2022-2023), funded by Innovate UK Smart Grants. (EBD & JW)
79. Dr. R. Wang “Back-end development and data analysis for LJMU Smart Green Dashboard” (2022-23), funded by DfT via LCR CA. (TTN, *et al.*)
80. Dr. Z. Xu, “Development of a holistic platform for the rational maintenance of floating wind farms” (2022-2023), funded by EU. (MB, *et al.*)
81. Mr. V. Yalagala “Sensor development and maintenance, with an application on active travel” (2022-23), funded by DfT via LCR CA. (TTN, *et al.*)

### Visiting research projects

82. U. Asgher, “fNIRs and AI applications” (Nov 2022-April 2023), funded by EU Marie Curie project ENHANCE. (FBG *et al.*)
83. Q. Liu, “Flexible and Self-Adaptive Flow Control Mechanism of Vertical-Axis Wind Turbines” (Dec 2022-Dec. 2023), funded by by CSC China. (MB *et al.*)
84. K. Shi, “Modelling and evaluation of seafarer’s unsafe state during navigation” (Nov 2022-Nov 2023), funded by Shanghai Maritime University, China. (EBD, *et al.*)
85. Ms T. Thongboonpian, “Railway timetable optimisation models and case study of the Suwannaphoom airport in Thailand” (Oct. 2022-April 2023), funded by EU REMESH project. (JR)
86. C. Wang, “Autonomous navigation system for maritime autonomous surface ships” (Sept 2022-Sept. 2023), funded by CSC China. (MB *et al.*)
87. Ms P. Yodsurang, “Research on the SRT freight and station information systems on the Q-GIS database” (Oct. 2022-April 2023), funded by EU REMESH project. (JR)

## 3. LOOM monthly seminars in 2022

2 LOOM monthly seminars were organised in 2022. Detailed information about the seminars is given in Appendix 2.

## 4. Research grants in 2022

### 4.1 External grants

#### Grants completed in 2022

|  |          |                       |
|--|----------|-----------------------|
| • EU ERDF Interreg - Atlantic Blue Port Services (2017-2022)     | €185,400 | (CK, <i>et al.</i> )  |
| • Resilience of off. wind energy platforms, Royal Soc. (2018-22) | £12,000  | (JW, <i>et al.</i> )  |
| • RAEng- Safer End to Engineered Life (2020-2022)                | £10,000  | (MA, <i>et al.</i> )  |
| • MoD (UK) via QinetiQ - MoD battery certification (2021-22)     | £71,100  | (MB, <i>et al.</i> )  |
| • Innovate UK – Flexible Manufacturing (2020-2022)               | £120,000 | (RD, <i>et al.</i> )  |
| • UK DfT – PopupWatch2 - Emergency popup routes (2021-22)        | £17,000  | (TTN, <i>et al.</i> ) |
| • EPSRC DecarboN8 Co-designing the 15-minute city (2021-2022)    | £25,000  | (TTN, <i>et al.</i> ) |

#### On-going grants in 2022

|   |                          |                           |
|---|--------------------------|---------------------------|
| • MarRI UK - Lookout Awareness of Distractions (2020-2023)      | £170,000                 | (AK, FBG, <i>et al.</i> ) |
| • AHRC-Newton fund: Urban revitalisation (2018 – 2022)          | £249,290                 | (FBG, <i>et al.</i> )     |
| • ESRC-MOST – MASS: UK-Taiwan joint cooperation (2021-23)       | £31,000 (out of £62,000) | (CHC, <i>et al.</i> )     |
| • InnovateUK - Smart Grant “Reducing Mar. Emissions” (2022-24)  | £49k (out of 499k)       | (EBD, <i>et al.</i> )     |
| • LCR - Development funding (Mar. Knowledge Hub) (2021-23)      | £97,000                  | (IJ, <i>et al.</i> )      |
| • EU H2020, REMESH – Emergency Resources Chain (2019-2023)      | €1,300,000               | (JR, <i>et al.</i> )      |
| • RAEng - Decommissioning of Offshore Structures (2020-2024)    | £12,800 (out of £200k)   | (JW, <i>et al.</i> )      |
| • EU Horizon 2020 – Offshore fire emergency systems (2020-2022) | €224,934                 | (JW, <i>et al.</i> )      |
| • H2020 RESET – Rel. and Safety Eng. and Tech. (2017-2023)      | €1,471,500               | (JW, <i>et al.</i> )      |
| • Research In geopolymers concretes (EU H2020, 2016-2022)       | €180,000 (out of €516k)  | (JW, <i>et al.</i> )      |
| • RAEng - VP in Marine Tech. & Project Man. (2021-24)           | £30,000                  | (JW, <i>et al.</i> )      |
| • EU Interreg - ARCWIND - Floating wind energy (2017-2023)      | €433,770 (out of €4m)    | (MB & JW, <i>et al.</i> ) |
| • EPSRC - Modelling of Turbulent Pulsating Flow (2020 – 2023)   | £259,481                 | (MS, <i>et al.</i> )      |
| • EU Erasmus+, SKILSEA: Futureproof Skills (2019-2023)          | €148,860 (out of €4m)    | (RP, <i>et al.</i> )      |
| • IAMU - Maritime Safety Optimization (2021-2023)               | \$20,000                 | (SL, <i>et al.</i> )      |

|   |                          |                       |
|---|--------------------------|-----------------------|
| • EU ERDF – LCR Green Sustainable Corridors (2018-2023)         | £673,000 (out of £8.35m) | (TTN, <i>et al.</i> ) |
| • ERC – Container transport resilience (2020-2025)              | €1,990,000               | (ZY)                  |
| • EU H2020 – Food Supply Chains (2018-2024)                     | €189,000                 | (ZY, <i>et al.</i> )  |
| • EU H2020 – Human reliability and training (2019-2023)         | €173,000 (out of €1m)    | (ZY, <i>et al.</i> )  |
| • EU Interreg - Knowledge transfer for blue economy (2019-2023) | €480,000 (out of €2.43m) | (ZY, <i>et al.</i> )  |
| • InnovateUK - Reducing Maritime Emissions £48,028 (20201-23)   | £48,028 (out of £498k)   | (EBD, <i>et al.</i> ) |

#### *Grants started in 2022*

|   |          |                       |
|---|----------|-----------------------|
| • IAMU- Addressing Human Error & Performance (2022-23)          | \$60,000 | (FBG, <i>et al.</i> ) |
| • British Council – UK-Malaysia University Consortium (2022-24) | £100,000 | (JW, <i>et al.</i> )  |
| • UKRI - Modelling of Turbulent Pulsating Flows (2022-2023)     | £12,000  | (MS, <i>et al.</i> )  |
| • Royal Society - Risk Prediction of Autonomous Ships (2022-24) | £12,000  | (ZY <i>et al.</i> )   |
| • UK DfT - Smart Technologies for the Green Corridors (2022-23) | £159,000 | (TTN, <i>et al.</i> ) |

#### *Grants awarded in 2022*

|   |                         |                      |
|---|-------------------------|----------------------|
| • EU via UKRI - RETROFIT55 - Decarbonising Shipping (2023-25) | £539,765 (out of €6.7m) | (MA, <i>et al.</i> ) |
| • EU via UKRI - ULTIMATE - Maintenance of turbines (2023-25)  | €236,748/(£204,093)     | (MB, <i>et al.</i> ) |
| • UKRI – Innovate - Retrofittable Propulsion System (2023-25) | £568,352 (out of £4.6m) | (MB, <i>et al.</i> ) |

## **5. Evidence of national and international peer esteem in 2022**

### ***a. Invited plenary addresses/keynote paper/presentation at international conferences/research seminar***

- Bashir M., “ Dynamic behaviours of underwater vehicle (bluff body) during launch and recovery in rough seas”, China (Zhejiang) Pilot Free Trade Zone "Ocean Engineering Technology", Zhejiang, China, 19<sup>th</sup> December 2022 (Online).
- Blanco-Davis E., ‘The usage of e-fuels in different transport modes, and their significance as a sustainable alternative’, at the 8th International Engineering, Science and Technology Conf. (IESTEC), 19<sup>th</sup>-21<sup>st</sup> October 2022, Panama City, Panama.
- Yang Z., “Use of advanced risk modelling in maritime supply chains”, plenary lecture, 2<sup>nd</sup> International Symposium on Automation in Manufacturing and Logistics, Wuhan, China, 12<sup>th</sup> -13<sup>th</sup> May 2022 (Online).
- Yang Z., “Climate mitigation and adaptation in transportation”, Opening keynote speech in the 2022 International Joint Conference on Civil and Marine Engineering, Shanghai, China, 23-25 December 2022 (Online).
- Yang Z., “Safety analysis of Maritime Surface Autonomous Ship (MASS)”, Opening keynote speech in 2022 International Conf. on Smart Transportation, Modern Logistics and Information Technology, Xiamen, China, 1<sup>st</sup> Nov. 2022 (Online).

### ***b. Other invited presentations***

- Bashir M., “ Development of intelligent prognostic health management framework with uncertainty quantification for floating wind turbine maintenance”, RENEW 2022 5<sup>th</sup> International Conference on Renewable Energies Offshore, Lisbon, Portugal, 8-10 November 2022.
- Chang C.H., “Evaluating the cybersecurity risks in the maritime industry”, invited presentation at the International Forum on Shipping, Ports and Airports Conference, Hong Kong, 16-20 May 2022 (Online).
- Chang C.H., “The development of Maritime Autonomous Surface Ships”, invited presentation at the CAU International Logistics Conference, Seoul, 18 Nov 2022 (Online).
- Khaliq A., Bury A., Kaminski K., “Lookouts not looking out”, Institute of Marine Engineering, Science and Technology (IMarEST), North West England and North Wales Branch Meeting, Liverpool, UK, 5<sup>th</sup> December 2022.
- Kontovas C., “Technical and Regulatory Discussions Related to Autonomous Vessels”, invited presentation at the Institute of Maritime Law, University of Southampton, 30th September 2022.
- Nguyen T.T. “Maritime research at the LOOM institute, LJMU”, invited presentation, Mersey Maritime, UK, November 2022.
- Nguyen T.T. “Using sensor analytics to support decision making in sustainable travel”, invited presentation, Liverpool Knowledge Quarter Sustainability Network, November 2022.
- Nguyen T.T. “Back to nature: Nature-inspired optimization in maritime, transportation and engineering”, inaugural lecture, LJMU, November 2022.
- Nguyen T.T. “Utilising sensor's data to evaluate and support infrastructure interventions for active travel”, invited presentation, LJMU Research and Knowledge Exchange Conference, December 2022.
- Ren J., “Emergency Materials Handling and Optimisation”, invited presentation at the School of Industry Management, University of Mahidol, 17-18th September 2022.
- Seddighi M. & Taylor P., “Development of CHAPSim for Modelling Pulsating Flows”, UKFN Special Interest Group in Nuclear Thermal Hydraulics (SIG NTH) and Collaborative Computational Project for Nuclear Thermal Hydraulics (CCP NTH), University of Cambridge, 27 June 2022.
- Yang Z., “A study on Maritime Surface Autonomous Ship (MASS) safety analysis”, Invited speech in the IMO Maritime Surface Autonomous Ship (MASS) Workshop, London, UK, 6-7 September, 2022 (Online).

### ***c. Journal editorships***

- Guest Editor, Sustainability. (CHC, CK)
- Associate Board of Editors, Journal of Marine Science and Application (JMSA). (EBD)
- Associate Editor of International Journal of Information & Systems Sciences. (JR)
- Editor in Chief of Journal of Marine Science and Technology. (JW)
- Associate Editor, Nonlinear Engineering. (MB)
- Guest Editor, Special issue on “Structural Design of Marine and Offshore Structures”, Journal of Marine Science and Engineering (MB & JW)
- Lead Guest Editor of a Special Issue in Mathematical Problems in Engineering. (QZ)
- Guest Editor Sustainability Special Issue: Sustainable Energy Systems and Renewable Generation. (SL)
- Guest Editor, Mathematical Problems in Engineering. (TTN)
- Associate Editor of Asian Journal of Shipping and Logistics. (ZY)
- Guest Editor, ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Parts A on Civil Engineering, special issue on “maritime safety”; and Journal of Advanced Transportation, special issue on “intelligent transport”. (ZY)

- Specialty Chief Editor of Frontier in Ocean Engineering, specialty section “autonomous maritime systems”. (ZY)

**d. Participation in national or international advisory, review, funding, standards or planning bodies**

- Reviewer for Dutch Research Council (NWO). (CHC)
- Reviewer for EPSRC. (CHC, MKM, MS)
- Advisor on the Ports and Terminals Advisory Group for UK Trade & Investment (UKTI). (IJ)
- Member of the IMO Formal Safety Assessment Experts Group. (JW)
- Member of sub-panel 12 Engineering in Research Excellence Framework (REF) 2021 in the UK. (JW)
- Member of the UK EPSRC peer review college of experts. (JW, ZY)
- Member of the IFAC (International Federation of Automatic Control) Technical Committee on Automation, Mineral, Mining and Metal Processing. (KJ)
- Editorial Advisor, Cambridge Publishing Group; External reviewer, the National Foundation for Science and Technology Development of Vietnam; Member of the IEEE Task Force on Evolutionary Computation in Dynamic and Uncertain Environments. (TTN)
- Advisor of the UK Government for Science on “Future of the Sea” programme; Evaluator/overseas expert/panel member of peer review bodies of the national research councils (or equivalent) of Norway, Poland, USA, UK, Romania, China, and Hong Kong, Netherland, Canada; Member of the Steering Committee of Liverpool City Region Freeport Project, UK. (ZY)

**e. Learned society involvement**

- Chairman of the Chartered Institute of Logistics and Transport (CILT) Merseyside and Warrington group. (DP)
- Committee member of the CILT Logistics Research Network (LRN) Forum. (DP)
- Committee member of the North West Branch of the IMarEST. (EBD)
- Committee member of the Consortium of Manufacturing Engineering Heads. (IJ)
- Chairman of Maritime Transportation Safety, European Safety and Reliability Association (ESRA). (JW)
- Co-Chair of the Intelligent Waterborne Transportation Systems Technical Committee (IWTS-TC), the IEEE Intelligent Transportation Systems Society (ITSS). (JW)
- Member of Council for the Institute of Measurement and Control. (KJ)
- Member of Maritime UK Technology and Innovation Group; Member of MarRI-UK Working Group. (MA)
- Member of Maritime UK Innovation and Technology Group. (MA)
- Member of MarRI-UK Working Group. (MA)
- President, YoungShip Liverpool; Member Institute of Marine Engineering, Science and Technology (IMarEST). (SL)
- Member of the Combustion Institute (UK Sector); Member of the UK Consortium on Turbulent Reacting Flows. (SM)
- Founding director of International Association of Transport, Trade and Service Studies (IATTSS). (ZY)

**f. External PhD examinership**

- 2 PhD examinations at Strathclyde University. (EDB)
- 1 PhD examination at The University of Manchester. (MS)
- 2 PhD examination at University of Isfahan. (MS)
- 1 Examination at University of Liverpool. (SL)
- 2 PhD examinations at Hongkong Polytech University. (ZY)

**g. Involvement of conference organisation**

- Chairman of the Research network on emergency resources supply chain (REMESH) Workshop, 12 September 2022, MS Teams, Manchester, UK. (JR)
- Co-chair of the 8th International Symposium on Reliability Engineering and Risk Management (ISRERM), Mini Symposium Maritime Safety and Smart Shipping (MSSS-2022), Hannover, 4 - 7 September 2022. (JW)
- Chair of UK-Malaysia University Consortium Partnership Forum in Research & Mobility, Opportunities & Challenges in International Higher Education, 22nd September 2022, The Science Gallery, Great Maze Pond, London, SE1 9GU. (JW)
- Co-chair of the 4th International Workshop on Maritime Safety and Smart Shipping and the 25th IEEE International Conference on Intelligent Transportation Systems, October and December of 2022. (JW)
- Programme Chair, the 15th IEEE International Conference on Knowledge and Systems Engineering (KSE 2023). (TTN)
- Programme Chair, 11th International Conference on Transportation and Traffic Engineering (ICTTE), Wuhan, China, 27-29 December 2022; and International Conference on Mechanical Engineering and Power Engineering (MEPE), Wuhan, China, 27-29 December 2022. (ZY)

**h. Prizes/honours**

- LJMU VC Award for Excellence in PG Research Supervision. (DBM)
- LJMU VC Award for Excellence - Rising Star. (SL)
- IEEE CIS Outstanding PhD Dissertation Awards. (TTN, *et al.*)
- EU Atlantic Project Award for the category Blue Skills and Ocean Literacy, in recognition of EMPORIA4KT’s outstanding initiative, successful collaboration and achievement. EMPORIA4KT is a €2.8 million project for blue economy knowledge transfer. It is coordinated by Universidade Nova de Lisboa and supported by 11 partners including a team at LJMU. (ZY, *et al.*)

**i. Consultancy**

- England and Wales High Court (Patent Court), Case No: HP-2019-000047 . Expert witness in Patent Dispute. (CM)
- Merseyrail, Merseytravel, LCR Combined Authority, Sefton Council, Liverpool City Council, Wirral Council, Knowsley Council, Northern Trains, Sustrans, Future Yard, NHS Merseyside and Cheshire, Liverpool Royal Hospital, several schools in LCR. (TTN)

**j. Others**

- Working in partnership with Risktec Solutions delivering distance learning and face-to-face modules. (DBM)
- Organising LJMU annual High Performance Computing (HPC) workshop. (MS)
- MSc thesis runner up in Maritime UK Maritime Masters competition (Rusdie Rasheed). (SL, *et al.*)



## Appendix 1: Publications published in 2022

### Book chapters

1. Loughney S., Edesess A.J., Applications of industrial IoT and WSNs in O & M programmes for offshore wind farms intelligent systems, control and automation, Science and Engineering, 2022, Vol.76 , 223-245.
2. Papantoniou G., Blanco-Davis E., The construction of a crude oil tanker ship: A life cycle assessment review, In Global Congress on Manufacturing and Management, Springer, Cham., 2022, 15-32.
3. Qu Z., Abujaafar K.M., Wang J., Nazir S., Mallam S.C., Blanco-Davis E., Guo F., Sivori H., Symes S., Yang Z., Advanced Bayesian model to quantify the adequacy of organization for human reliability: A maritime case, In Global Congress on Manufacturing and Management, Springer, Cham., 2022, 560-576.

### Refereed academic journal papers (SCI cited)\*

4. Abdulkadir R., Matellini D.B., Jenkinson I.D., Pyne R., Nguyen T.T., “Assessing performance using maturity model: a multiple case study of public health supply chains in Nigeria”, Journal of Humanitarian Logistics and Supply Chain Management, 2023, 10.1108/JHLSCM-05-2022-0053. (IF: 0.75)
5. Bashir B., Xu Z.F., Wang J., Guedes Soares C., “Data-driven damage quantification of floating offshore wind turbine platforms based on multi-scale encoder-decoder with self-attention mechanism”, Journal of Marine Science and Technology, 2022, Vol.10(12), 1830, 10.3390/jmse10121830. (IF: 1.947)
6. Cao Y., Wang X.J., Fan S., Wang H., Yang Z., Liu Z.J., Wang J., Shi R., “Analysis of factors affecting the severity of marine accidents using a data-driven Bayesian network”, Ocean Engineering, 2023, Vol.269, 113563, 10.1016/j.oceaneng.2022.113563. (IF: 4.375)
7. Cui R., Liu z., Wang X., Yang Z., Fan S., Shu Y., “The impact of marine engine noise exposure on seafarer fatigue: A China case”, Ocean Engineering, 2022, Vol. 266, pp. 112943. (IF: 4.375)
8. Cutler J., Bashir M.B., Yang Y., Wang J., Loughney S., “Preliminary development of a novel catamaran floating offshore wind turbine platform and assessment of dynamic behaviours for intermediate water depth application”, Ocean Engineering, 2022, Vol.258, 10.1016/j.oceaneng.2022.111769. (IF: 4.375)
9. Díaz H., Loughney S., Wang J., Guedes Soares C., “Comparison of multicriteria analysis techniques for decision making on floating offshore wind farms site selection”, Ocean Engineering, 2022, Vol.248, 110751. (IF: 4.375)
10. Fan S., Yang Z., “Safety and security co-analysis in transport systems: Current state and regulatory development”, Transportation Research Part A: Policy and Practice, Vol.166, 369-388. (IF: 6.615)
11. Fan S., Yang Z., Wang J., Marsland J., “Shipping accident analysis in restricted waters: Lesson from the Suez Canal blockage in 2021”, Ocean Engineering, 2022, Vol.266(5), 113-119. (IF: 4.375)
12. Fan X., Huang H., Li K., Chang C.H., Shi, W., “Spatial threshold effect of tax competition on carbon dioxide emissions intensity in China”, Climate Policy, 2022, 10.1080/14693062.2022.2137098. (IF: 6.056)
13. Fang S., Liu Z., Wang X., Wang J., Yang Z., “Simulation of evacuation in an inclined passenger vessel based on an improved social force model”, Safety Science, 2022, Vol. 148, 105675. (IF: 6.329)
14. Hassan S., Kontovas C., Bashir M., Wang J., “A decision support system for assessing cross country pipeline systems: An approach based on Evidential Reasoning (ER) and Cost-Benefit-Analysis (CBA)”, Journal of Pipeline Systems Engineering and Practice, 2022, 10.1061/JPSEA2/PSENG-1327. (IF: 1.916)
15. Huang D., Wang S., Loughney S., Wang J., “Evolutionary game model of strategic maritime transport passages: A case of the Strait of Hormuz”, Journal of Marine Science and Engineering, 2022, Vol.10(3), 346, 10.3390/jmse10030346. (IF: 2.744)
16. Ishola A., Kontovas C.A. “Managing ship’s ballast water: A feasibility assessment of mobile port-based treatment”, Sustainability, 2022, Vol.14(22), 14824. (IF: 3.889)
17. Ji K., Zhang Q., Yuan Z., Cheng H., Yu D., “A virtual force interaction scheme for multi-robot environment monitoring”, Robotics and Autonomous Systems, 2022, Vol. 149, 103967. (IF: 3.7)
18. Jiang M.Z., Lu J., Qu Z., Yang Z., “Safety evaluation of the ports along the Maritime Silk Road”, Maritime Policy and Management, 2022, Vol.49(6), 797-819. (IF: 3.167)
19. Kanwal K., Shi W., Kontovas C., Yang Z., Chang C.H., "Maritime cybersecurity: Are onboard systems ready?", Maritime Policy and Management, 2022, doi.org/10.1080/03088839.2022.2124464. (IF:3.167)
20. Lee P.T.W., Jun C.Y., Lin C.W., Lee M.K. and Yang Z., “Performance evaluation of Asian major cruise terminals”, Ocean & Coastal Management, Vol.221, 106130. (IF: 4.295)
21. Kontovas C., Bras A.A., Chang C.H., Romano A., Poo M.C.P., Wang J., McCormack H., Qu Z., Paraskevadakis D., Lamb L., Yang Z.L., “Fostering innovation in the blue economy within the United Kingdom (UK): A stakeholders’ perspective”, Ocean & Coastal Management, 2022, Vol.224, 106143, 10.1016/j.ocecoaman.2022.106143. (IF: 4.295)
22. Li H., Lam J., Yang Z., Liu J., Liu W., Liang M., Li Y., “Unsupervised hierarchical methodology of maritime traffic pattern extraction for knowledge discovery”, Transportation Research Part C: Emerging Technology, 2022, Vol.143, 103856. (IF: 9.022)
23. Li H., Jia P., Wang X., Yang Z., Wang J., Wang X., Yang A., “Ship carbon dioxide emission estimation in coastal domestic emission control areas using high spatial-temporal resolution data: A China case”, Ocean & Coastal Management, 2022, 106419, 10.1016/j.ocecoaman.2022.106419. (IF: 4.295)
24. Li R., Zhang X., Jiang L., Yang Z., and Guo W., “An adaptive heuristic algorithm based on reinforcement learning for ship scheduling optimization problem”, Ocean & Coastal Management, 2022, Vol.230, 106375. (IF:4.295)
25. Liang X., Fan S., Lucy J., Yang Z., “Risk analysis of cargo theft from freight supply chains using a data-driven Bayesian network”, Reliability Engineering and System Safety, 2022, Vol.226, 108702. (IF: 7.247)
26. Lin, C.C., Yang, Z. and Chang, C.H., “Facilitating adoption of virtual communities through emotional connection in the global logistics industry”, International Journal of Logistics: Research and Applications, 2022, 10.1080/13675567.2022.2153815. (IF: 5.992)
27. Liu K.Z., Yu Q., Wan C.P., Yang Z., Yang Z., “Improving the performance of port state control inspections using data-driven Bayesian networks”, Reliability Engineering and System Safety, 2022, Vol.224, 108530. (IF: 7.247)
28. Liu Q., Miao W., Bashir M., Xu Z.F., Yu T., Luo S., Li C., “Aerodynamic and aeroacoustic performance assessment of a vertical axis wind turbine by synergistic effect of blowing and suction”, Energy Conversion and Management, 2022, Vol.271, 116289, 10.1016/j.enconman.2022.116289. (IF: 11.533)

\* IF: Impact Factor.

29. Loughney S., Wang J., Matellini D.B., "Utilizing the evidential reasoning approach to determine a suitable wireless sensor network orientation for asset integrity monitoring of an offshore gas turbine driven generator", *Expert Systems with Applications*, 2021, Vol.185, 115583, 10.1016/j.eswa.2021.115583. (IF: 8.665)
30. Özaydın E., Fişkın R., Uğurlu O., Wang J., "A Hybrid Model for Marine Accident Analysis based on Bayesian Network (BN) and Association Rule Mining (ARM)", *Ocean Engineering*, 2022, Vol.247, 110705, 10.1016/j.oceaneng.2022.110705. (IF: 4.375)
31. Paraskevadakis D., Ifeoluwa A., "An industry-level analysis of the post-Brexit and post-Covid 19 Ro-Ro ferry market and critical maritime freight transport links between the UK and the EU", *Journal of Shipping and Trade*, 2022, Vol7(1), 1-33. (IF:1.8)
32. Peng G., Sun Y., Zhang Q., Yang Q., Shen W., "A collaborative design platform for new alloy material development", *Advanced Engineering Informatics*, 2022, Vol. 51, 101488. (IF: 7.862)
33. Ren T., Ren J., Matellini D.B., Ouyang W., "A comprehensive review of modern cold chain shipping solutions", *Sustainability*, 2022, Vol14(22), 14746. (IF: 3.889)
34. Sèbe M., Kontovas C.A., Pendleton L., Gourguet S., "Cost-effectiveness of measures to reduce ship strikes: A case study on protecting the Mediterranean fin whale", *Science of the Total Environment*, 2022, Vol. 827, 154236. (IF:10.753)
35. Shen L., Hou Y., Yang Q., Lv M., Dong J., Yang Z., Li D., "Synergistic path planning for ship-deployed multiple UAVs to monitor vessel pollution in ports", *Transportation Research Part D: Transport Env.*, 2022, Vol.110, 103415. (IF: 7.041)
36. Toh S. M.S., Ashkanfar A., English R., Rothwell G., "The relation between body weight and wear in Total Hip Prosthesis: A finite element study", *Computer Methods and Programs in Biomedicine*, 2022, 100060. (IF: 7.027)
37. Tonoğlu F., Atalar F., Başkan I.B., Yıldız S., Uğurlu O., Wang J., "A new hybrid approach for determining sector-specific risk factors in Turkish Straits: Fuzzy AHP-PRAT technique", *Ocean Engineering*, 2022, Vol.253, 111280, 10.1016/j.oceaneng.2022.111280. (IF: 4.375)
38. Uğurlu O., Kartal S.E., Gündoğan O., Aydın M., Wang J., "A statistical analysis-based Bayesian network model for assessment of mobbing acts on ships", *Maritime Policy & Management*, 2022, 10.1080/03088839.2022.2029606. (IF: 3.167)
39. Wan C.P., Tao J.L., Yang Z., Zhang D., "Evaluating recovery strategies for the disruptions in liner shipping networks: a resilience approach", *International Journal of Logistics Management*, 2022, Vol.33(2), 389-409. (IF: 5.446)
40. Wang H., Liu Z., Liu Z., Wang X., Wang J., "GIS-based Analysis on the Spatial Patterns of Global Maritime Accidents", *Ocean Engineering*, Vol.245, 2022, 10.1016/j.oceaneng.2022.110569. (IF: 4.375)
41. Wang H., Liu Z., Wang X., Huang D., Cao L., Wang J., "Analysis of the injury-severity outcomes of maritime accidents using a zero-inflated ordered probit model Article Type", *Ocean Engineering*, 2022, Vol.258, 111796, 10.1016/j.oceaneng.2022.111796. (IF: 4.375)
42. Wang X.J., Liu Z.J., Loughney S., Yang Z., Wang Y.F., Wang J., "Numerical analysis and staircase layout optimization for a ro-ro passenger ship during emergency evacuation", *Reliability Engineering and System Safety*, 2022, Vol.217, 108056. (IF: 7.247)
43. Wang X.J., Xia G., Zhao J., Wang J., Yang Z.L., Loughney S., Fang S., Zhang S., Xing Y., Liu Z.J., "A novel method for the risk assessment of human evacuation from cruise ships in maritime transportation", *Reliability Engineering & System Safety*, 2022, 10.1016/j.res.2022.108887. (IF: 7.247)
44. Wang Y., Chen P., Wu B., Wan C., Yang Z., "A trustable architecture over blockchain to facilitate maritime administration for MASS systems", *Reliability Engineering & System Safety*, 2022, Vol.219, 108246. (IF: 7.247)
45. Wang Y., Ma W., Wang T., Liu J., Wang X., Malkeson S., Yang Z., Wang J., "Dynamic optimization of evacuation route in the fire scenarios of offshore drilling platforms", *Ocean Engineering*, 2022, Vol. 247, 110564. (IF: 4.375)
46. Xin X.R., Liu K.Z., Loughney S., Wang J., Yang Z., "Maritime traffic clustering to capture high-risk multi-ship encounters in complex waters", *Reliability Engineering & System Safety*, 2023, Vol.230, 108936. (IF: 7.247)
47. Xu Z., Bashir, *et al.*, "An intelligent fault diagnosis for machine maintenance using weighted soft-voting rule based multi-attention module with multi-scale information fusion", *Information Fusion*, 2022, Vol.86, 17-29. (IF: 17.567)
48. Xu Z.F., Bashir M., Yang Y., Wang X., Wang J., Ekere N., Li C., "Multisensory collaborative damage diagnosis of a 10MW floating offshore wind turbine tendons using multi-scale convolutional neural network with attention mechanism", *Renewable Energy*, 2022, 10.1016/j.renene.2022.08.093. (IF: 8.634)
49. Yan Y., Yang Y., Bashir M., Li Chun, Wang J., "Dynamic analysis of 10MW offshore wind turbines with different support structures subjected to earthquake loadings", *Renewable Energy*, 2022, PII: S0960-1481(22)00686-3, 10.1016/j.renene.2022.05.045. (IF: 8.634)
50. Yang Y., Chang C.H., Liu Q., "The impact of COVID-19 pandemic on EU imports from China", *Research in Transportation Economics*, 2022, 10.1016/j.retrec.2022.101251. (IF: 2.904)
51. Yıldız S., Uğurlu Ö., Loughney S., Wang J., Tonoğlu F., "Spatial and statistical analysis of operational conditions influencing accident formation in narrow waterways: A case study of Istanbul Strait and Dover Strait", *Ocean Engineering*, 2022, Vol.265, 112647, 10.1016/j.oceaneng.2022.112647. (IF: 4.375)
52. Yıldız S., Tonoğlu F., Uğurlu O., Loughney S., Wang J., "Spatial and statistical analysis of operational conditions contributing to marine accidents in the Singapore Strait", *Journal of Marine Science and Engineering*, 2022, Vol.10, Issue 12, 10.3390/jmse10122001. (IF: 2.744)
53. Yuan Z., Liu J., Liu Y., Zhang Q., Li Y., Li Z., "A two-stage modelling method for multi-station daily water level prediction", *Environmental Modelling and Software*, 2022, Vol.156, 105468. (IF: 5.471)
54. Zhang J., Ren X., Li H., Yang Z., "Incorporation of deep kernel convolution into density clustering for shipping AIS data denoising and reconstruction", *Journal of Marine Science and Engineering*, 2022, Vol.10, 1319. (IF: 2.744)
55. Zhang X., Li J., Yang Z., Wang X., "Collaborative optimization for loading operation planning and vessel traffic scheduling in dry bulk ports", *Advanced Engineering Informatics*, 2022, Vol.51, 101489. (IF: 7.862)
56. Zhang Q., Chen J., Nguyen T.T., "Computational Intelligence in data-driven modelling and its engineering applications 2020". *Mathematical Problems in Engineering*, 2022, 9845906. (IF 1.43)

#### Other academic journal papers

57. Ren T., Ren J., Matellini D.B., Tammam-Williams, S., "A cold chain packaging risk management system based on Bayesian Network", *International Journal of Mechanical and Production Engineering*, 2022, Vol.10(10), 35-44.

#### Refereed conference papers



58. Abadi A.G., Chang C.H., Matellini B., Darlington R., Jenkinson I., “The performance of cold chain logistics for perishable products: A missing research agenda in low-income countries (from systematic literature review to conceptual framework and research agenda)”, 4<sup>th</sup> African Conference on Operations and Supply Chain Management (ACOSCM2022), 2022.
59. Blades J., Jones K.O., Robinson C., “Audio restoration of dubplates: cleaning and digital processing lacquer records from reggae/dancehall culture, Proceedings of the 36<sup>th</sup> Inter. Conf. on Information Technologies (InfoTech 2022), Sept. 2022.
60. Chandrasekar R., Gkantou M., Nikitas G., Hashim K., Pradeep H.R., Ahuja A., “Integration of 3D concrete printing in the construction industry: A short review”, In: Karkush, M., Choudhury, D., Han, J. (eds) Current Trends in Geotechnical Engineering and Construction, ICGECI 2022, 2022, Springer, Singapore, 10.1007/978-981-19-7358-1.
61. Chang C.C., Kontovas C., Yang Z., Karamperidis S., Ung S.T., Lin C.C., “Maritime Autonomous Surface Ships (MASS): current regulations and regulatory challenges”, Inter. Ass. of Mar. Economics 2022, Busan, Korean, 14-16 September 2022.
62. Fan S., Yang Z., “A conceptual neurophysiological data driven mental workload assessment framework for human factors in maritime operations”, the 6<sup>th</sup> International Conference on Maritime Technology and Engineering (MARTECH 2022), Lisbon, Portugal, 24-26 May 2022.
63. Ford J., Loughney S., Wang J., “Key factors in the handling of hazardous waste during the decommissioning of UK offshore installations”, Proceeding of 4<sup>th</sup> International Conference on Nuclear Power Plants: Structures, Risk, Control & Decommissioning (NUPP 2022), 19-20 September 2022.
64. Guo F.B., Mu B.Y., Wah M., Yang Z., Blanco-Davis E., Khalique A., Bury A., “Towards an ergonomic interface in ship bridges: Identification of the design criteria”, International Conference on Applied Human Factors and Ergonomics (AHFE) 2022, New York, USA, 24-28 July 2022.
65. Huang D., Wang S., Loughney S., Wang J., “Evolutionary game model of strategic transport passages in the context of Belt and Road Initiative: A case of the Strait of Hormuz”, Proceeding of 6<sup>th</sup> International Conference on Transportation Information and Safety ICTIS 2021 and 6<sup>th</sup> International Conference on Transportation Information and Safety (ICTIS), Proceeding published in 2022, 600-612.
66. Ji K., Zhang Q., Yu D., “A virtual force-based strategy for multi-robot target search”, The 21<sup>st</sup> UK Workshop on Computational Intelligence, UK, September 2022.
67. Jones K.O., Robinson C., Burrell H., McColl S., Bennett H., Morrison K., “Audio & video forensics – A new direction for electronic engineering lecturing”, International Conf. on New Approaches in Engineering (ICNAE'22), September 2022
68. Jones K.O., Jones B.S., “How robust is the United Kingdom justice system against the advance of deepfake audio and video?”, Proceedings of the 36<sup>th</sup> International Conference on Information Technologies (InfoTech 2022), September 2022.
69. Li H., Yang Z., “AIS data-based machine learning for unsupervised route planning of maritime autonomous surface ships”, International Association of Maritime Economics 2022, Busan, Korean, 14-16 September 2022.
70. Li H., Yang Z., “AIS data-based machine learning for unsupervised route planning of maritime autonomous surface ships”, 8<sup>th</sup> Inter. Symposium on Rel. Engineering and Risk Management (ISRERM), Hannover, Germany, 4-7 September 2022.
71. Lin C.C., Kontovas C., Yang Z., Karamperidis S., Ung S.T., Chang C.C., “Evaluating the social acceptance of autonomous ferries: a user perspective”, International Association of Maritime Economics 2022, Busan, Korean, 14-16 September, 2022.
72. Loughney S., Ngwoke K., Yildiz S., Wang J., Ugurlu O., “Investigation and evaluation of marine accidents in terms of grounding and contacts/collisions in the English Channel utilising the HFACS approach”, Annual European Safety and Reliability Conference (ESREL), Dublin, Ireland, 28th August – 1st September 2022, paper 459.
73. Maklad O., Taylor P., Moulinec C., Seddighi M., “An investigation on transient flow behaviour in pulsating channel flows”, UK Fluids Conference, University of Sheffield, UK, 6-8 September 2022.
74. Moammer M., Bashir M., Pyne R., Wang J., “Developing a readiness assessment model for traditional ports in order to implement a smart port project”, LRN2022 (26<sup>th</sup> Annual Conference of Logistics Research Network 2022), Aston University, Birmingham, UK, 7-9 September 2022.
75. Park C., Kontovas C., Yang Z., Chang C.H., “Measures to control maritime cybersecurity risks: A Korean perspective”, Proceedings of the IAME Conference 2022, Busan, Korea. Sept. 2022.
76. Poo C.P., Lau J., Yang Z., “Network analysis for global shipping network under the influence of arctic shipping”, The 26<sup>th</sup> International Conference of Hong Kong Society for Transportation Studies, Hong Kong, China, 12-13 December, 2022
77. Poo C.P., Yang Z., Leung E., “Disaster data-driven climate change risk index for ports”, International Association of Maritime Economics 2022, Busan, Korean, 14-16 September 2022.
78. Ren T., Ren J., Matellini D.B., “A cold chain packaging risk management system based on Bayesian Network”, 1380th International Conference on Science, Innovation and Management, Paris, August 2022.
79. Saeed F., Abou-Elkawam M., Bury A., “Efforts of International Maritime Organization (IMO) into improving safety at sea through Maritime Education and Training (MET)”, 4<sup>th</sup> Higher Colleges of Technology (HCT) Inter. Multi-Conferences - Advances in Science and Engineering Technology (ASET 2022), Dubai, United Arab Emirates, 21<sup>st</sup> 24<sup>th</sup> February 2022.
80. Symes S., Fairclough S., Blanco-Davis E., Yang Z., Wang J., “Investigating the effect of task stressors; fatigue, distraction and increased workload via the observation of the pre-frontal cortex on ship engine room operators: An fNIRS study”, International Maritime HF Symposium, University of Strathclyde, Glasgow, UK, 28-29-30th of November 2022.

#### **Magazine articles**

81. Khalique A., Bury A., “Moving on from Covid-19: Lessons from the maritime teaching experience”, *Seaways*, 2023, 7.
82. Khalique A., Bury A., “Scanning: from screen to scene”, *Seaways*, November 2022, 6-7.

#### **Other publications**

83. Khalique A., Bury A., Kaminski K., “Scanning: from screen to scene” [Online], Available online at: <https://www.nautinst.org/resources-page/scanning-from-screen-to-scene.html>, 2022.
84. Loughney S., Wang J., Yildiz S., Ugurlu O., Kontovas C., “Maritime Risk Evaluation and Safety Optimization in Narrow Straits (M-REASONS): A case study in Istanbul Strait and English Channel”, IAMU Report, 2022.

#### **Research Informed Teaching:**

85. Jones K., “Audio and Video Forensics: Research across faculties results in an MSc designed in collaboration with Merseyside Police”, Research Informed Case Study, 2022.
86. Loughney S., “Developing critical knowledge of marine asset management through innovative risk-based integrity management, Life-cycle assessment and decision-making techniques in industrial applications”, Research Informed Case Study, 2022.

87. Matellini D.B., "Research Informed Teaching: Incorporating innovation and research into a collaborative distance learning MSc programme in Risk and Safety Management", Research Informed Case Study, 2022.

## **Appendix 2: LOOM monthly seminars in 2022**

**Time:** 10.00-11.15, first Wednesday of each month.

**Venue:** Room 1.21, LOOM Research Institute, James Parsons Building, Byrom Street, Liverpool John Moores University, Liverpool, L3 3AF, UK

Each internal speaker will give a talk of 30 minutes (excluding question time) while an external speaker is usually given 60 minutes (excluding question time).

In 2022, LOOM delivered 2 research seminars.

9 Nov 2022, 10-11am, Room 1.21, James Parsons Building.

Dr Mohd Foad bin Abdul Hamid, Technical University of Malaysia

Title: A Robust Probabilistic Fatigue Crack Growth Model based on Walker's Crack Growth Rate Equation for Metallic Materials

Prof. Mohd Nasir bin Tamin, Technical University of Malaysia

Title: Multifractal Fatigue Crack Propagation

7 Dec 2022, 10-11am, Room 1.21, James Parsons Building.

Prof. Ab Saman Abd Kader, Technical University of Malaysia

Title: Marine Control Systems in Marine Operation – An Overview

Mohd Rajali bin Jalal, Technical University of Malaysia

Title: The Application of Reliability Tools in Asset Performance Management of Quay Crane in Container Port Terminal