MOHAMMED Z.E.B. ELSHAFIE

Qatar University,
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Department of Civil and Architectural Engineering
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EDUCATION

- PhD in Geotechnical Engineering – University of Cambridge (Oct 2004 to Feb. 2008)
- MPhil in Geotechnical Engineering – University of Cambridge (Oct 2003- Oct 2004)
- B.Sc (Honours) in Civil Engineering – University of Khartoum (1997 – 2002)

PROFESSIONAL EXPERIENCE

- **Sep 2020 – Present:** Visiting Academic Fellow at Department of Engineering, University of Cambridge.
- **Sep 2017 – Present:** Associate Professor and Chair of the Research and Graduate Committee at the Civil and Architectural Engineering Department - Qatar University
- **April 2011 – August 2017:** Lecturer & Senior Lecturer in Construction Engineering and Technology & Deputy Director for the Laing O'Rourke Centre at the Department of Engineering, University of Cambridge
- **Oct. 2009 – April 2011:** Research Associate at Cambridge University Engineering Department leading the instrumentation works for the Knowledge Transfer Partnership (KTP) between Cambridge University and Crossrail Ltd.
- **Oct. 2008 – Present:** Teaching & Research Fellow at Robinson College, University of Cambridge
- **Jan. 2009 – Oct. 2009:** Geotechnical engineer at Geotechnical Consulting Group (GCG), London, UK. Featured projects include:
  - Design of the Brighton and Hove Stadium roof foundations
  - Construction of a new basement underneath the existing building at 40 Upper Brooke St, London
  - Damage risk assessment to the Piccadilly Line tunnels from Heathrow T2 development
  - Assessment of a mitigation scheme for the Jubilee Line between Baker St. and Bond St. stations
- **Jan. 2008 – Dec. 2008:** Post-doctoral Research Associate at Cambridge University Engineering Department. Developing a 2D robotic actuator for simulation of construction processes in the geotechnical centrifuge.
- **Aug. 2002 - Sept. 2003:** Construction supervisor at Komatsu Eng. Ltd., Khartoum, Sudan. Engineer responsible for building the foundations and basement structure for Afra Mall, Khartoum, Sudan.

OTHER APPOINTMENTS & AFFILIATIONS

- Executive Council Member – International Society for Structural Health Monitoring and Intelligent Infrastructure (ISHMII)
- Participating Member of ASTM International – Sub-committee F36 which wrote the ASTM fibre optic sensors in construction standard (2013 – 2016)
- Member of the Institution of Civil Engineers (September 2013 – Present)
- Member of the ASCE Construction Institute and Geo-Institute (June 2013 – Present)
- Associate Editor for the ASCE Journal of Computing in Civil Engineering (September 2013 – August 2014)
- Geotechnique Advisory Panel for the "Tunnelling in the Urban Environment" Symposium in Print (SiP) – October 2016
- Member of the EPSRC Associate Peer Review College (May 2016 – Present)
- Panel Member of the Institution of Civil Engineers Awards for Papers panel; the panel considers the best papers published in print for all of the Institution of Civil Engineers (ICE) journals.

RECOGNITION AND AWARDS

1. ASCE J. James R. Croes Medal (2019) for the paper, "Structural Performance Monitoring Using a Dynamic Data-Driven BIM Environment"
2. The Fleming Award for Geotechnical Engineering Excellence (2013) awarded by the Institution of Civil Engineers, the British Geotechnical Association and Cementation Skanska The award, which recognises excellence in the practical application of geotechnics in a project, is the major geotechnical related industrial award in a the calendar year.
3. Best Paper Award on the 5th International Forum on Opto-electronic Sensor-based Monitoring in Geo-engineering held in Nanjing University in October 2014.
4. The work of my group on the monitoring of the Royal Mail tunnel during the Crossrail tunnelling works has been awarded the 'Ground Investigation and Monitoring Award' category on the International Tunnelling and Underground Space Awards that was held on the 4th December 2014 in London.
5. The Institution of Civil Engineers Russell Crampton Award for the best paper in the ICE Proceedings – Geotechnical Engineering for 2014. The paper, published in the Geotechnical Engineering journal describes the monitoring activity undertaken at Abbey Mills shaft F, one of the main shafts of Thames Water's Lee tunnel project in London.

PUBLICATIONS LIST

(1) Book

M.Z.E.B. Elshafie, G.M.B. Viggiani and R. J. Mair (2021). Proceedings of the Tenth International Symposium on the Geotechnical aspects of underground construction in soft ground. CRC Press, ISBN: 9780367337339.

(2) Book

Kechavarzi, C., Soga, K., de Battista, N, Pelecanos, L., **Elshafie, M.** and Mair, R.J. (2016) Distributed Optical Fibre Sensing for Monitoring Geotechnical Infrastructure - A Practical Guide, ICE Publishing, 192pp. ISBN: 9780727760555

(3) Book Section

Soga, K., Kechavarzi, C., Pelecanos, L., de Battista, N., Williamson, M., Gue, C. Y., Di Murro, V. and **Elshafie, M.** (2016). Distributed fibre optic strain sensing for monitoring underground structures – Tunnel Case Studies, Pamucku, S. and Cheng, L., (eds). Underground Sensing: Monitoring and Hazard Detection for Environment and Infrastructure, Elsevier. ISBN: 9780128031391

(4) Peer Reviewed Journal Papers

1. Da Silva Burke, T.S and **Elshafie, M.Z.E.B.** (2021). Geosynthetic-reinforced soils above voids: observation of soil and geosynthetic deformation mechanisms. Geotextiles and Geomembranes (https://doi.org/10.1016/j.geotexmem.2020.02.013).
2. Da Silva Burke, T.S and **Elshafie, M.Z.E.B.** (2021). Geosynthetic-reinforced soils above voids: experimental observation and prediction of soil arching. Geotextiles and Geomembranes (https://doi.org/10.1016/J.GEOTEXMEM.2020.11.005).
3. Sasaki, T., Shao, B., **Elshafie, M.Z.E.B**, Papadopoulou, M., Yamamoto, K. and Soga, K. (2021). Simulation of axial tensile well deformation during reservoir compaction in offshore unconsolidated methane hydrate-bearing formation. (https://doi.org/10.1016/j.compgeo.2020.103894).
4. Da Silva Burke, T.S and **Elshafie, M.Z.E.B.** (2020). Arching in granular soils: limit state equilibrium. Geotechnique (https://doi.org/10.1680/jgeot.19.P.175).

5. Da Silva Burke, T.S and **Elshafie, M.Z.E.B.** (2020). Arching in granular soils: experimental observations of deformation mechanisms. Geotechnique (https://doi.org/10.1680/jgeot.19.P.174).
6. Sun, Q., **Elshafie, M.Z.E.B.**, Barker, C., Fisher, A., Schooling, J. & Rui, Y. (2020). Thermal integrity testing of cast in situ piles: An alternative interpretation approach. Structural Health Monitoring. (https://doi.org/10.1177/1475921720960042).
7. Hillel, T., Bierlaire, M. **Elshafie, M.Z.E.B.** and Jin, Y. (2020). A systematic review of machine learning classification methodologies for modelling passenger mode choice. Journal of Choice Modelling. (https://doi.org/10.1016/j.jocm.2020.100221).
8. Ye, C, Butler, L.J., **Elshafie, M.Z.E.B.** & Middleton, C.R. (2020). Evaluating prestress losses in a prestressed concrete girder railway bridge using distributed and discrete fibre optic sensors. Construction and Building Materials. (https://doi.org/10.1016/j.conbuildmat.2020.118518).
9. Faustin, N.E, **Elshafie, M.Z.E.B.,** Mair. R.J. & Quigg, G. (2020). Discussion: Case studies of circular shaft construction in London. Proceedings of the Institution of Civil Engineers, Geotechnical Engineering. (https://doi.org/10.1680/jgeen.19.00098).
10. Xu, J., Butler, L.J. & **Elshafie, M.Z.E.B.** (2020). Experimental and numerical investigation of the performance of self-sensing concrete sleepers. Structural Health Monitoring. (https://doi.org/10.1177/1475921719834506).
11. Gue, C.Y. & **Elshafie, M.Z.E.B.** (2019). Development of a three-dimensional staged volume loss tunnelling method in the centrifuge. International Journal of Physical Modelling in Geotechnics, vol. 19, issue 6, pp. 275 – 285.
12. Gregory, A., Lau, F.D.-H., Girolami, M., Butler, L.J. & **Elshafie, M.Z.E.B.** (2019). The synthesis of data from instrumented structures and physics-based models via Gaussian processes. Journal of Computational Physics, Volume 392, 1 September 2019, Pages 248-265.
13. Xu, J., Butler, L. J. & **Elshafie, M. Z. E. B**. (2019). Experimental and numerical investigation of the performance of self-sensing concrete sleepers. Structural Health Monitoring Journal, Volume 1, Issue 19, pp. 66 – 85.
14. Lin, W., Butler, L. J., **Elshafie, M. Z. E. B**., & Middleton, C. R. (2019). Performance Assessment of a Newly Constructed Skewed Half-Through Railway Bridge Using Integrated Sensing. Journal of Bridge Engineering, 24(1). doi:10.1061/(ASCE)BE.1943-5592.0001334
15. Sasaki, T., Soga, K., & **Elshafie, M. Z. E. B**. (2018). Simulation of wellbore construction in offshore unconsolidated methane hydrate-bearing formation. Journal of Natural Gas Science and Engineering, 312-326. doi:10.1016/j.jngse.2018.10.019
16. Liam J. Butler, Weiwei Lin, Jinlong Xu, Niamh Gibbons, **Mohammed Z. E. B. Elshafie** and

Campbell R. Middleton (2018). Monitoring, Modeling, and Assessment of a Self-Sensing Railway Bridge during Construction. ASCE Journal of Bridge Engineering 23(10): 04018076.

17. Ridwan Rahman, Samir Dirar, Yassir Jemaa, Marios Theofanous and **Mohammed Elshafie** (2018). Experimental Behavior and Design of Exterior Reinforced Concrete Beam-Column Joints Strengthened with Embedded Bars. ASCE Journal of Composites for Construction, Vol. 22, Issue 6: 04018047.
18. Lau FD-H, Butler LJ, Adams NM, **Elshafie MZEB** and Girolami MA (2018) Real-time statistical modelling of data generated from self-sensing bridges. Proceedings of the Institution of Civil Engineers – Smart Infrastructure and Construction 171(1):3 –13, https://doi.org/10.1680/jsmic.17.00023.
19. Hillel T, **Elshafie MZEB** and Jin Y (2018). Recreating passenger mode choice-sets for transport simulation: A case study of London, UK. Proceedings of the Institution of Civil Engineers – Smart Infrastructure and Construction 171(1): 29–42, https://doi.org/10.1680/jsmic.17.00018.
20. Faustin NE, **Elshafie MZEB** and Mair RJ (2018). Case studies of circular shaft construction in London. Proceedings of the Institution of Civil Engineers – Geotechnical Engineering, https://doi.org/10.1680/jgeen.17.00166.
21. Pelecanos, L and Soga, K and **Elshafie, MZEB** and de Battista, N and Kechavarzi, C and Gue, CY and Ouyang, Y and Seo, H-J (2018). Distributed Fiber Optic Sensing of Axially Loaded Bored Piles. ASCE Journal of Geotechnical and Geoenvironmental Engineering, 144. ISSN 1090-0241.
22. Gue, CY and Wilcock, MJ and Alhaddad, MM and **Elshafie, MZEB** and Soga, K and Mair, RJ (2017) Tunnelling close beneath an existing tunnel in clay - perpendicular undercrossing. Geotechnique, Vol. 67, pp. 795-807. ISSN 0016-8505.
23. Delgado, JMD and Butler, LJ and Brilakis, I and **Elshafie, MZEB** and Middleton, CR, (2018). Structural Performance Monitoring Using a Dynamic Data-Driven BIM Environment. ASCE Journal of Computing In Civil Engineering, 32. ISSN 0887-3801.
24. Lau, FDH and Adams, NM and Girolami, MA and Butler, LJ and **Elshafie, MZEB**, (2018). The role of statistics in data-centric engineering. Statistics and Probability Letters. ISSN 0167-7152 (https://doi.org/10.1016/j.spl.2018.02.035).
25. Williamson, MG and **Elshafie, MZEB** and Mair, RJ and Devriendt, MD, (2017). Open-face tunnelling effects on non-displacement piles in clay - part 1: centrifuge modelling techniques. GEOTECHNIQUE, 67. pp. 983-1000. ISSN 0016-8505.
26. Williamson, MG, Devriendt, MD, Mair, RJ and **Elshafie, MZEB**, (2017). Open-face tunnelling effects on non-displacement piles in clay – part 2: tunnelling beneath loaded piles and analytical modelling. Geotechnique, Vol. 67, Issue 11, pp. 1001 – 1019.

27. Butler LJ, Xu J, Ping H, Gibbons N, Dirar S, Middleton CR, and **Elshafie MZEB** (2018). Robust fibre-optic sensor arrays for monitoring early-age performance of mass-produced concrete railway sleepers. Journal of Structural Health Monitoring, Vol. 17, Issue 3: 635-653.
28. Butler LJ, Gibbons N, Ping H, Elshafie MZEB, and Middleton CR (2016). Evaluating the early-age behaviour of full-scale prestressed concrete beams using distributed and discrete fibre optic sensors. Journal of Construction and Building Materials, 126: 894 – 912.
29. J.M. Davila Delgado, L.J. Butler, N. Gibbons, I. Brilakis, **M.Z.E.B. Elshafie** and C. Middleton (2016). Management of structural monitoring data of bridges using BIM. Proceedings of the Institution of Civil Engineers: Bridge Engineering, Vol. 170, Issue 3: 204-218.
30. Schwamb, T., **Elshafie, M.Z.E.B.,** Soga, K. and Mair, R. J. (2016). Considerations for monitoring of deep circular excavations. Proceedings of the Institution of Civil Engineers Geotechnical Engineering, DOI: 10.1680/jgeen.15.00063
31. Qapo, M., Dirar, S., Yang J. and **Elshafie, M.** (2015). Nonlinear finite element modelling and parametric study of CFRP shear-strengthened prestressed concrete girders. Construction & Building Materials Journal, No. 76 (2015) pp. 245-255.
32. Qin, S., Dirar, S., Yang, J., Chan, A. and **Elshafie, M.** (2015). CFRP strengthening of reinforced concrete T-beams with corroded shear links. ASCE Journal of Composites for Construction, Volume 19, Issue 5, October 2015, 04014081.
33. M. Nakashima, A. Hammer, M. Thewes, **M. Elshafie**, K. Soga. (2015). Mechanical behavior of a sprayed concrete lining isolated by a 'spray-on' waterproofing membrane. Tunnelling and Underground Space Technology, Volume 47, March 2015, pp. 143-152.
34. Gue, C. Y., Wilcock, M., Alhaddad, M. M., **Elshafie, M. Z. E. B.,** Soga, K., and Mair, R. J. (2015). The monitoring of an existing cast iron tunnel with distributed fibre optic sensing (DFOS). Journal of Civil Structural Health Monitoring, November 2015, Volume 5, Issue 5, pp. 573 – 586.
35. Madabhushi, S., **Elshafie, M. Z. E. B**., and Haigh, S. (2014). Accuracy of Distributed Optical Fiber Temperature Sensing for Use in Leak Detection of Subsea Pipelines. J. Pipeline Syst. Eng. Pract., Vol. 6. Issue 2, May 2015, 04014014.
36. Ge, Y., **Elshafie, M.Z.E.B**, Middleton, C.R. and Dirar, S. The Response of Embedded Strain Sensors in Concrete Beams Subjected to Thermal Loading. Construction & Building Materials Journal 70 (2014), pages 279-290.
37. Schwamb, T., Soga, K., Mair, R. J., **Elshafie, M.Z.E.B.,** Sutherden, R., Boquet, C., and Greenwood, J. (2013). Fibre optic monitoring of a deep circular excavation. Proceedings of the Institution of Civil Engineers Geotechnical Engineering, 166, Issue GE1, pages 1–12.
38. **Elshafie, M.Z.E.B.,** Choy, C. K. C., and Mair, R. J., (2013). Centrifuge modeling of deep

excavations and their interaction with adjacent buildings, Geotechnical Testing Journal, Vol. 36, No. 5, 2013, pp.1–12.

39. Lam, S.Y., **Elshafie, M.Z.E.B.,** Haigh, S.K. & Bolton, M.D., (2012). Development of a new apparatus for modelling deep excavation related problems in geotechnical centrifuge. International Journal of Physical Modelling in Geotechnics, 12(1) 24-38.

(5) Conference Papers

1. Eid, H., O'Sullivan, B., **Elshafie, M.Z.E.B.**, Stollberg, R. & Kalin, R. (2020). Predicted and back-calculated coefficients of permeability of randomly fractured rock mass: a case study. In International Conference on Civil Infrastructure and Construction (CIC 2020), Doha, Qatar, 2-5 February, 2020.
2. Sun, Q., **Elshafie, M.Z.E.B.** and Rui, Y. (2020). Concrete Hydration Model Characterization Using Evolutionary Optimization. In International Conference on Civil Infrastructure and Construction (CIC 2020), Doha, Qatar, 2-5 February, 2020.
3. Torisu SS, Faustin, NE, **Elshafie, MZEB** and Mair, RJ (2019). Monitoring of shaft excavations in clay. International Conference on Smart Infrastructure and Construction 2019 (ICSIC).
4. Sun, Q. & **Elshafie, M.Z.E.B** (2019). A new thermal integrity method for pile anomaly detection. Structural Health Monitoring 2019: Enabling Intelligent Life-Cycle Health Management for Industry Internet of Things (IIOT) - Proceedings of the 12th International Workshop on Structural Health Monitoring, Stanford, USA.
5. Bosman, T., Kearsley, E.P., Skorpen, S.A., Butler, L.J. & **Elshafie M.Z.E.B**. (2019). Comparing eurocode 2 prestress loss estimations to strains measured on a pretensioned bridge beam. Advances in Engineering Materials, Structures and Systems: Innovations, Mechanics and Applications, Proceedings of the 7th International Conference on Structural Engineering, Mechanics and Computation (SEMC 2019), September 2-4, 2019, Cape Town, South Africa
6. da Silva, T.S., Haigh, S.K., **Elshafie, M.Z.E.B**., Jacobsz, S.W., Day, P.W., & Osman, A (2019). Preparations for field testing for the performance validation of piled wind turbine foundations in expansive clays. Proceedings of the 17th African Regional Conference on Soil Mechanics and Geotechnical Engineering, Cape Town, South Africa.
7. Butler LJ, Lau D-h, Gregory A, Girolami M and **Elshafie MZEB** (2019). Introducing Data-Centric Engineering to Instrumented Infrastructure. The 3rd International Conference on Smart Infrastructure and Construction, Cambridge, United Kingdom, July 8 – 10, 2019 (10.1680/icsic.64669.343).

8. Butler LJ, **Elshafie MZEB** and Middleton CR (2018). Pervasive fibre-optic sensor networks in bridges: a U.K. case study. The 9th International Conference on Bridge Maintenance, Safety and Monitoring Proceedings, Melbourne, July 9 – 13, 2018.

9. Faustin, NE, Elshafie, MZEB and Mair, RJ (2018). Modelling the excavation of elliptical shafts in the geotechnical centrifuge. In: 9th International Conference on Physical Modelling in Geotechnics, London UK
10. Faustin, NE, Elshafie, MZEB and Mair, RJ (2018). Centrifuge modelling of shaft excavations in clay. In: 9th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, pages 295 to 300.
11. da Silva, T.S. and **Elshafie, M.Z.E.B**. (2018). Observed deformations in geosynthetic-reinforced granular soils subjected to voids. 9th International Conference on Physical Modelling in Geotechnics (ICPMG 2018), 17 – 20 July 2018, London, UK.
12. Küsel, F., Kearsley, E., Butler, L. J., Skorpen, S. A., & **Elshafie, M. Z. E. B**. (2018). Measured temperature effects during the construction of a prestressed precast concrete bridge beam. In MATEC Web of Conferences Vol. 199. doi:10.1051/matecconf/201819911013
13. Huang, A. B., Wu, K. W., **Elshafie, M. Z. E. B**., Hung, W. Y., & Ho, Y. T. (2018). Development of an FBG-sensed miniature pressure transducer and its applications to geotechnical centrifuge modelling. In Springer Series in Geomechanics and Geoengineering (pp. 694-698). doi:10.1007/978-3-319-97112-4_155
14. da Silva, T.S., Elshafie, M.Z.E.B., and Madabhushi, G.S.P. (2017). Centrifuge modelling of the initiation of cracks in a clay liner subjected to differential settlement with and without overburden pressure. 19th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE 2018). 17 – 22 September 2017, Seoul, Korea.
15. Seo, H. J., Wilcock, M.J, Soga, K., **Elshafie, M.,** Mair, R.J. (2017). Distributed fibre optic monitoring of the time-dependent behaviour of tunnel segmental linings in London clay. The 2017 World Congress on Advances in Structural Engineering and Mechanics (ASEM17), Seoul, Korea, 28 Aug.-01 Sep, 2017.
16. N.E. Faustin, R.J. Mair, **M.Z.E.B Elshafie**, C.O. Menkiti & M. Black (2017). Field measurements of ground movements associated with circular shaft construction. Proceedings of the 9th Int. Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, TC204 ISSMGE - IS-SAO PAULO 2017
17. Da Silva, T.S., **Elshafie, M.Z.E.B.**, and Madabhushi, G.S.P. (2017). Estimation of the coefficient of lateral Stress used in the calculation of Loads on buried structures. In: T. L. Brandon and R. J. Valentine (eds.), Geotechnical Frontiers 2017: Transportation Facilities,

Structures, and Site Investigation; Geotechnical Special Publication No 277. ASCE. 12-15 March 2017. Orlando, Florida, USA. ISBN 978-0-7844-8044-1 (PDF), pp. 233 – 242.

18. N.E. Faustin, R.J. Mair, **M.Z.E.B Elshafie**, C.O. Menkiti & M. Black (2017). Field measurements of ground movements associated with circular shaft construction. Proceedings of the 9th Int. Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, TC204 ISSMGE - IS-SAO PAULO 2017
19. Gue, C. Y., Wilcock, M. J., Alhaddad, M. M., **Elshafie, M. Z. E. B**., Soga, K., & Mair, R. J. (2017). Monitoring the behaviour of an existing royal mail tunnel: London underground bond street station upgrade works. In Geotechnical Special Publication (pp. 525-535). doi:10.1061/9780784480441.055
20. Gue, C. Y., Alhaddad, M. M., Wilcock, M. J., **Elshafie, M. Z. E. B**., & Mair, R. J. (2017). Longitudinal response of an existing cast iron tunnel subjected to parallel piggy-back tunnelling. In SHMII 2017 - 8th International Conference on Structural Health Monitoring of Intelligent Infrastructure, Proceedings (pp. 189-200).
21. T. Hillel, P. Guthrie, **M. Elshafie** and Y. Jin (2016). Assessing the discrepancies between recorded and commonly assumed journey times in London. Transforming the Future of Infrastructure through Smarter Information: Proceedings of the International Conference on Smart Infrastructure and Construction, RJ Mair, K Soga, Y Jin, AK Parlikad and JM Schooling (eds.), Cambridge, UK, 27–29 June 2016, ISBN 978-0-7277-6127-9
22. Butler LJ, Gibbons N, Middleton CR, **Elshafie MZEB** (2016). Integrated Fibre-Optic Sensor Networks as Tools for Monitoring Strain Development in Bridges during Construction. The 19th Congress of IABSE Proceedings, Stockholm, September 21 – 23, 2016:1767 – 1775.
23. Butler, Liam J., Gibbons, Niamh, Middleton, Campbell, **Elshafie, Mohammed Z.E.B.** (2016). Integrated fibre-optic sensor networks as tools for monitoring strain development in bridges during construction. Proceedings of the 9th Congress of International Association for Bridge and Structural Engineering (IABSE), Stockholm, Sweden September 21–23, 2016
24. L. J. Butler, N. Gibbons, H. Ping, J. Xu, P. Crowther and **M.Z.E.B. Elshafie** (2016). Development of self-sensing concrete sleepers for next-generation rail infrastructure. Transforming the Future of Infrastructure through Smarter Information: Proceedings of the International Conference on Smart Infrastructure and Construction, RJ Mair, K Soga, Y Jin, AK Parlikad and JM Schooling (eds.), Cambridge, UK, 27–29 June 2016, ISBN 978-0-7277-6127-9
25. Da Silva, T.S., **Elshafie, M.Z.E.B.,** and Madabhushi, G.S.P. (2016). Centrifuge modelling of arching in granular soils. Proceedings of the 3rd European Conference on Physical Modelling in Geotechnics (EuroFuge 2016), 1 -3 June 2016. Nantes, France. Luc Thorel, Alberto

Bretschneider, Matthieu Blanc and Sandra Escoffier (eds.), ISBN PDF : 978-2-85782-717-7, pp. 301 – 306.

26. Da Silva, T.S., **Elshafie, M.Z.E.B.,** and Sun, T. (2016). Fibre optic instrumentation and calibration in the geotechnical centrifuge. Proceedings of the 3rd European Conference on Physical Modelling in Geotechnics (EuroFuge 2016), 1 -3 June 2016. Nantes, France. Luc Thorel, Alberto Bretschneider, Matthieu Blanc and Sandra Escoffier (eds.), ISBN PDF : 978-2-85782-717-7, pp. 129 – 134.
27. Da Silva, T.S., **Elshafie, M.Z.E.B.,** and Madabhushi, G.S.P. (2016). Physical modelling of geosynthetic-reinforced soils spanning voids. Proceedings of the 6th European Geosynthetics Congress (EuroGeo6), 25-28 September 2016. Ljubljana, Slovenia. Erol Guler (ed.), pp.784 – 781.
28. Qapo, M., Dirar, S., Yang, J. and **Elshafie, M.** (2015) Numerical modelling of CFRP shear-strengthened prestressed concrete beams. In: 7th International Conference on Advanced Composites in Construction (ACIC 2015), Cambridge, United Kingdom, pp.156-161.
29. Abdul Rahman, R., Dirar, S., Jemaa, Y., Yang, J. and **Elshafie, M**. (2015) Shear strengthening of exterior beam-column joints using embedded carbon fibre reinforced polymer bars. In: 7th International Conference on Advanced Composites in Construction (ACIC 2015), Cambridge, United Kingdom, pp.148-153.
30. Ouyang, Y., Bell, A., **Elshafie, M.,** Kechavarzi, C., Soga, K., Fernie, R. and Mair, R. (2015). The history of UK experience in the use of fibre optic monitoring of geotechnically associated installations. Proceedings of the XVI ECSMGE Geotechnical Engineering for Infrastructure and Development held in September 2015, Edinburgh, UK, ICE Publishing, ISBN 978-0-7277-6067-8, pp. 637-642.
31. **M. Z. E. B. Elshafie**, C. Y. Gue, N. De Battista, M. Alhaddad, M. Wilcock, K. Soga, R. J. Mair (2015). A Tale of Two Tunnels—Understanding the Performance of Existing and New Tunnels during Construction Works, International Workshop in Structural Health Monitoring (IWSHM) held in Stanford on the 1st-3rd September 2015, doi: 10.12783/SHM2015/197
32. S Gil Lorenzo, **M Elshafie**, K Soga, R Mair, P Wright and M Clegg (2015). Monitoring concrete segmental lining tunnels with fibre-optic and conventional instrumentation. Proceedings of the Ninth International Symposium on Field Measurements in Geomechanics (FMGM 2015), Sydney, Australia, 9-11 September 2015, edited by Phil Dight, pp. 373 – 384.
33. Lorenzo, S. G., **Elshafie, M**., Soga, K., Mair, R. J., Wright, P. and Clegg, M. (2015). Structural monitoring of concrete segmental lining tunnels during construction with conventional and fibre

optic instrumentation. The Third Conference on Smart Monitoring, Assessment and Rehabilitation of Structures, SMAR 2015 Antalya, Turkey, 7-9 September 2015, edited by Ilki, A., Motavalli, M., Inci, P. and Kohli, M., ISBN 978-3-905594-65-2, pp.

34. N. de Battista, **M. Elshafie**, K. Soga, M. Williamson, G. Hazelden and Y. S. Hsu (2015). Strain monitoring using embedded distributed fibre optic sensors in a sprayed concrete tunnel lining during the excavation of cross-passages. Proceedings of the 7th International Conference on Structural Health Monitoring of Intelligent Infrastructure (SHMII-7 2015), Torino, Italy, July 2015.
35. Gibbons, N., Butler, L., Williamson, M., Ellwood, A., Platt, R., Oliver, J., Henwood, M., Holland, P., Dirar, S., Arthurs, S., Middleton, M. and **Elshafie, M.** (2015). Monitoring the early age behaviour of prestressed concrete beams using fibre optic sensors. Proceedings of the 16th European Conference, Edinburgh, June 2015, edited by Forde, M. C., ISBN 0-947644-78-4.
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