

H.M. Yasitha Chinthaka Mallikarachchi

Department of Civil Engineering, University of Moratuwa, Kattubedda, Sri Lanka
Tel: +94-112640051 Ext. 2006 / +94-713444157 e-mail: yasithcm@uom.lk/yasithcm@gmail.com
website: <https://uom.lk/staff/Mallikarachchi.HMYC.php>

Education

Doctor of Philosophy (Ph.D.) 2006 - 2011

Department of Engineering

University of Cambridge, UK

Thesis advisor: Prof. Sergio Pellegrino

Thesis topic: “Thin-walled composite deployable booms with tape-spring hinges”

Bachelor of Science of Engineering (B.Sc. Eng. Hons. first class) 2001 - 2005

Department of Civil Engineering

University of Moratuwa, Sri Lanka

Professional Qualifications

- Chartered Engineer, Institute of Engineers, Sri Lanka
- Member, Institution of Engineers, Sri Lanka
- Member, American Institute of Aeronautics and Astronautics
- Member, Society of Structural Engineers, Sri Lanka

Current Affiliations

- Professor, Department of Civil Engineering, University of Moratuwa, Sri Lanka
- Editor, Society of Structural Engineers, Sri Lanka.

Honours and Awards

- Research Grants
 - *Investigator Driven Research Project Grant*, 2020, National Research Council, Sri Lanka
 - *Indo-Sri Lanka Inter-Governmental Science and Technology Cooperation Programme - Joint Research Project with IIT Hyderabad* 2019, Department of Science and Technology, India and State Ministry of Skills Development, Vocational Education, Research and Innovation, Sri Lanka
 - *Indo-Sri Lanka Inter-Governmental Science and Technology Cooperation Programme - Joint Research Project with IIT Roorkee* 2017, Department of Science and Technology, India and Ministry of Science and Technology Research, Sri Lanka
 - *Overseas Special Training Programme Grant*, 2017, National Science Foundation, Sri Lanka
 - *Investigator Driven Research Project Grant*, 2014, National Research Council, Sri Lanka
 - *Senate Research Committee Research Grants*, University of Moratuwa, Sri Lanka for years 2020, 2017, 2014

- Best Paper Awards
 - *Best Paper Award in the Track of Structural Engineering and Building Materials at 8th Moratuwa Engineering Research Conference (MERCon 2022)*, 2022, Engineering Research Unit, University of Moratuwa, Sri Lanka
 - *Best Paper Award in the Track of Structural Engineering and Building Materials at 7th Moratuwa Engineering Research Conference (MERCon 2021)*, 2021, Engineering Research Unit, University of Moratuwa, Sri Lanka
 - *Best Paper Award in the Track of Civil and Environmental Engineering at 6th Moratuwa Engineering Research Conference (MERCon 2020)*, 2020, Engineering Research Unit, University of Moratuwa, Sri Lanka
 - *Best Paper Award in the Track of Civil and Environmental Engineering at 4th Moratuwa Engineering Research Conference (MERCon 2018)*, 2018, Engineering Research Unit, University of Moratuwa, Sri Lanka
 - *Best Paper Award in the Track of Civil and Environmental Engineering at 3rd Moratuwa Engineering Research Conference (MERCon 2017)*, 2017, Engineering Research Unit, University of Moratuwa, Sri Lanka
 - *Prof. Raghu Chandrakeerthi Gold Medal for the Best Paper Presented at the Annual Sessions*, 2016, Society of Structural Engineers, Sri Lanka
- Fellowships
 - *Visiting Research Associate*, 2013, 2015, 2017 and 2019, California Institute of Technology, USA
 - *Graduate Research Assistant fellowship*, 2008 - 2011, California Institute of Technology, USA
 - *Cambridge Commonwealth Trust fellowship* 2006 - 2009, University of Cambridge, UK
- Other
 - *Outstanding Research Performance*, 2013, 2014, 2015, 2016, 2017, 2018, 2019 and 2020, University of Moratuwa, Sri Lanka

Research Interest

Deployable structures, fibre reinforced polymer composites, micro-mechanical modelling, folding and deployment mechanics of thin shells, design optimization, dynamic discharge modelling of bulk materials, digital image correlation

Research Experience

- **University of Moratuwa, Sri Lanka**

Professor in the Department of Civil Engineering	2021 - present
Senior Lecturer in the Department of Civil Engineering	2012 - 2021
Developing	

 - homogenization techniques for predicting mechanical properties of woven fibre composites
 - modelling techniques to predict folding and deployment behaviour of thin shells
 - modelling techniques to predict crease mechanics of thin folded membranes

- design improvement techniques for deployable structures
- modelling techniques to simulate dynamic discharge of infill bulk material
- optics based systems for displacement measurements

- **California Institute of Technology, USA**

Research Associate 2013 - present
 Postdoctoral Scholar 2011 - 2012
 Graduate Research Assistant 2008 - 2011
 in the Space Structures Laboratory at Graduate Aerospace Laboratories.

Developed a modelling technique to predict the behaviour of creased membranes to be used for solar sails as a part of Surrey Space Centers deOrbitSAIL mission.

Developed a six dimensional failure criterion for symmetric two-ply plain weave carbon fibre reinforced polymer (CFRP) laminates. Established a design methodology for tubular booms with multiple tape-spring hinges.

- **University of Cambridge, UK** 2006 - 2008

Graduate Research Assistant in the Deployable Structures Laboratory at the department of engineering.

Developed manufacturing and fabrication techniques to construct thin-walled CFRP composite booms. Developed simulation technique to accurately capture both quasi-static and dynamic deployment behaviour of tape-spring hinges.

- **University of Moratuwa, Sri Lanka** 2005 - 2006

Graduate research assistant in the department of civil engineering.

Researched on Load and Resistance Models to study effects of tsunami waves on buildings with a view to formulate guide lines for constructing low cost buildings in the coastal region.

Teaching Experience

- **Professor and Senior Lecturer, Department of Civil Engineering**

Teaching modules related to building and structural engineering division, both at undergraduate and postgraduate levels from 2012

- *Undergraduate:* Structural Mechanics II, Structural Analysis I & II, Computational Mechanics
- *Postgraduate:* Computer Analysis of Structures, Advanced Structural Analysis, Finite Element Analysis, Designing with Fibre Composites

- **Department of Civil and Environmental Engineering, University of Ruhuna**

Visiting lecturer for the M.Sc. in Structural Engineering, for Finite Element Analysis module in 2022

- **Kothalawala Defence University, Rathmalana**

Visiting lecturer for the M.Sc. in Civil Engineering, for Introduction to Finite Element Methods module in 2017

- **Caltech Undergraduate Microgravity Research Group**

Guided five undergraduates who got selected for NASA's reduced gravity education flight program to test deployable booms in the reduced gravity aircraft, 2010 - 2011

- **Teaching Assistant**

- Mechanics of Composite Materials and Structures, 2008 - 2009, California Institute of Technology
- Mechanical CAD CAM project, 2007 - 2008. University of Cambridge
- Analysis of Structures, Computer Analysis of Structures, 2005 - 2006. University of Moratuwa

Professional Activities

- **Reviewer**

- *International Journal of Solids and Structures*
- *Composite Structures*
- *Composites Part A*
- *Journal of Composite Materials*
- *Thin-Walled Structures*
- *Structural and Multidisciplinary Optimization*
- *AIAA Journal*
- *Journal of Spacecraft and Rockets*
- *Acta Astronautica*
- *Aerospace Science and Technology*
- *Materials & Design*
- *Journal of Mechanisms and Robotics*

- Editor, Society of Structural Engineers - Sri Lanka (2021/2022)
- Assistant Editor, Society of Structural Engineers - Sri Lanka (2017/2018)
- Assistant Secretary, Society of Structural Engineers - Sri Lanka (2016/2017)

- **Selected Consultancy Assignments**

- Colombo Lotus Tower Project 2012 - 2019
Member of the Project Consultancy Unit - responsible for computer modelling of 350 m tall tower. Structures team leader - Prof Priyan Dias.
- SLT-CEB Pole Sharing Project 2019
Structural assessment of pole sharing between Sri Lanka Telecom and Ceylon Electricity Board for optical fibre distribution network together with Dr Asanka Rodrigo.
- Design Rectification to Manning Market Car Park 2020
Numerical analysis and recommendation of rectifications to column cracks at the expansion joints at Manning Market car part at Peliyagoda. Other members Prof Priyan Dias, Dr Sumudu Herath.
- Mount Clifford Precast Building 2019
Numerical analysis and design check of eight storey precast building at Homagama constructed by International Construction Consortium (Pvt) Ltd.
- Structural Assessment and Condition Upgrading of Mahaweli Marine Cement Silos - Colombo Terminal 2018
Numerical modelling and analysis of 13 cement silos located at Colombo port.

- Analysis of Intz-type Water Tank 2018
Numerical modelling of 1500³ Intz-type elevated water tank for Ceywater consultants.
- Design Rectification to Water Tank Foundation 2020
Recommendations to rectify ill constructed raft foundation of a 750 m³ conical type elevated water tank at Ethakada, Anuradhapura for Ceywater Consultants. Performed together with Prof Priyan Dias.
- Structural Assessment of BOC Buildings
Condition assessment of Bank of Ceylon buildings at Colombo City branch, Nugegoda branch, Maharagama branch and Negambo branch, and circuit bungalow renovation, Kandy.
- Design Review of Cantilever Roof for Koggala Holiday Resort 2014
Was responsible for computer modelling of three storey hotel resort and suggesting remedial measures for excessive deflection of 1 m to 0.3 m thick tapering roof garden slab under the guidance of Prof. Priyan Dias.
- Thermal Investigation of Thick Concrete Rafts (2 m - 3 m deep)
Was responsible for instrumentation and monitoring of temperature for (2 m - 3 m) tall mockups for the Colombo Lotus Tower, Altair Project, John Keels Water Front Development Resort, etc. under the guidance of Prof. Anura Nanayakkara.
- Corrosion of Pile Reinforcement at Southern Expressway Extension (Matara to Beliatta)
Was responsible for computer modelling corrosion of reinforcement under the guidance of Prof. Priyan Dias.

Journal Publications

- N. Gowrikanthan, M. Jayasekara, C. Mallikarachchi and S. Herath, “Effects of tow arrangements on the homogenized response of carbon fiber woven composites”, *Composite Structures*, Vol. 300 (November 2022):116081, doi: [10.1016/j.compstruct.2022.116081](https://doi.org/10.1016/j.compstruct.2022.116081).
- P.K. Kamaliya, A. Shukla, S.H. Upadhyay and H.M.Y.C. Mallikarachchi, “Analysing wrinkle interaction behaviour with Z-fold crease pattern in thin-film planar membrane reflector”, *International Journal of Solids and Structures*, Vol. 254-255 (November 2022):111902, doi: [10.1016/j.ijsolstr.2022.111902](https://doi.org/10.1016/j.ijsolstr.2022.111902).
- P.M. Liyanage, N. Gangasudan and H.M.Y.C. Mallikarachchi, “Modified spiral folding pattern for deployable membranes”, *Aerospace Science and Technology*, vol.117(2021):106926, doi: [10.1016/j.ast.2021.106926](https://doi.org/10.1016/j.ast.2021.106926).
- P.K. Kamaliya, S.H. Upadhyay and H.M.Y.C. Mallikarachchi, “Investigation of wrinkling behaviour in the creased thin-film laminates”, *International Journal of Mechanics and Materials in Design*, vol.17:899-913 (2021), doi: [10.1007/s10999-021-09559-5](https://doi.org/10.1007/s10999-021-09559-5).
- B.Y. Dharmadasa, M.W. McCallum, S. Mierunalan, S.P. Dassanayake, H.M.Y.C. Mallikarachchi and F. Lopez-Jimenez, “Formation of plastic creases in thin polyimide films”, *ASME J. Appl. Mech.*, May 2020; 87(5): 051009, doi: [10.1115/1.4046002](https://doi.org/10.1115/1.4046002).
- H.M.Y.C. Mallikarachchi, “Predicting mechanical properties of thin woven carbon fiber reinforced laminates”, *Thin-Walled Structures*, Vol. 135(2019):297–305, doi: [10.1016/j.tws.2018.11.016](https://doi.org/10.1016/j.tws.2018.11.016).

- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Design of ultrathin composite self-deployable booms”, *Journal of Spacecraft and Rockets*, Vol. 51(6):1811–1821, doi: [10.2514/1.A32815](https://doi.org/10.2514/1.A32815).
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Deployment dynamics of ultrathin composite booms with tape-spring hinges”, *Journal of Spacecraft and Rockets*, Vol. 51(2):604–613, doi: [10.2514/1.A32401](https://doi.org/10.2514/1.A32401).
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Failure criterion for symmetric two-ply plain-weave CFRP laminates”, *Journal of Composite Materials*, Vol. 47(11):1357–1375, doi: [10.1177/0021998312447208](https://doi.org/10.1177/0021998312447208).
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Quasi-static folding and deployment of ultra-thin composite structures”, *Journal of Spacecraft and Rockets*, Vol. 48(1):187–198, doi: [10.2514/1.47321](https://doi.org/10.2514/1.47321).
- W.P.S. Dias and H.M.Y.C. Mallikarachchi, “Tsunami - planning and design for disaster mitigation”, *The Structural Engineer*, Vol. 84, 6 June 2006, pp. 25-29.

International Conference Proceedings

- I. Nanayakkara, C. Mallikarachchi and P. Dias, “Estimation of rotation capacity of monosymmetric I-beams”, *7th International Conference on Structural Engineering, Mechanics and Computations*, Cape Town, South Africa, 2 - 4 September 2019, doi: [10.1201/9780429426506-205](https://doi.org/10.1201/9780429426506-205).
- B.Y. Dharmadasa, H.M.Y.C. Mallikarachchi and F.Lopez-Jimenez, “Characterizing the mechanics of fold-lines in thin Kapton membranes”, *4th AIAA Spacecraft Structures Conference*, AIAA-2018-0450, Orlando, Florida, 7 - 12 January 2018, doi: [10.2514/6.2016-0970](https://doi.org/10.2514/6.2016-0970).
- M. Sokovsky, S. Pellegrino and H.M.Y.C. Mallikarachchi, “Folding and deployment of closed cross-section dual-matrix composite booms”, *3rd AIAA Spacecraft Structures Conference*, AIAA-2016-0970, San Diego, California, 4-8 January 2016, doi: [10.2514/6.2016-0970](https://doi.org/10.2514/6.2016-0970).
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Composite deployable tubular antenna booms”, *Workshop on Large Deployable Antennas*, ESA/ESTEC, Noordwijk, Netherlands, 2-3 October 2012.
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Design and validation of thin-walled composite deployable booms with tape-spring hinges”, *52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, AIAA-2011-2019, Denver, Colorado, 4-7 April 2011, doi: [10.2514/6.2011-2019](https://doi.org/10.2514/6.2011-2019).
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Optimized designs of composite booms with integral tape-spring hinges”, *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, AIAA-2010-2750, Orlando, Florida, 12-15 April 2010, doi: [10.2514/6.2010-2750](https://doi.org/10.2514/6.2010-2750).
- H.M.Y.C. Mallikarachchi and S. Pellegrino (2009), “Folding and deployment of ultra-thin composite structures”, *Proceedings of International Scientific Conference on Advanced Lightweight Structures and Reflector Antennas*, Institute of Constructions, Special Systems and Engineering Maintenance of the Georgian Technical University, pp. 48-57, Tbilisi, Georgia, 14-16 October 2009.

- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Deployment dynamics of composite booms with integral slotted hinges”, *50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, AIAA-2009-2631, Palm Springs, California, 4-7 May 2009, doi: [10.2514/6.2009-2631](https://doi.org/10.2514/6.2009-2631).
- H.M.Y.C. Mallikarachchi and S. Pellegrino, “Simulation of quasi-static folding and deployment of ultra-thin composite structures”, *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, AIAA-2008-2053, Schaumburg, Illinois, 7-10 April 2008, doi: [10.2514/6.2008-2053](https://doi.org/10.2514/6.2008-2053).

Local Conference Proceedings

- S.S. Lowhikan and C. Mallikarachchi, “3D full-field deformation measurement using stereo vision”, *Moratuwa Engineering Research Conference 2022*, Katubedda, Sri Lanka, 27 - 30 July 2022, [**Best Paper Award in Structural Engineering and Building Materials Track**].
- U. Weerasinghe, S. Herath and C. Mallikarachchi, “Homogenization of ultra thin woven composite structures at high curvatures”, *Moratuwa Engineering Research Conference 2022*, Katubedda, Sri Lanka, 27 - 30 July 2022.
- S. Dassanayake, N. Suthatsanan and C. Mallikarachchi, “Quasi-static deployment simulation of a kapton polyimide creased unit”, *Moratuwa Engineering Research Conference 2022*, Katubedda, Sri Lanka, 27 - 30 July 2022.
- H.H.N.D. Haggalla and H.M.Y.C. Mallikarachchi, “Self-deployment simulation of long narrow thin shells”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 24 Aug 2021.
- M. Jayasekara, S. Herath, N. Gowrikanthan and C. Mallikarachchi, “Size effect and fibre arrangement on meso-mechanical modelling of woven fibre composites”, *Moratuwa Engineering Research Conference 2021*, Katubedda, Sri Lanka, 27 - 30 July 2021, [**Best Paper Award in Structural Engineering and Building Materials Track**], doi: [10.1109/MERCon52712.2021.9525715](https://doi.org/10.1109/MERCon52712.2021.9525715).
- Sutharsanan N., C. Piyumi and C. Mallikarachchi, “Characterising the self-opening behaviour of single creased kapton polyimide films”, *Moratuwa Engineering Research Conference 2021*, Katubedda, Sri Lanka, 27 - 30 July 2021, doi: [10.1109/MERCon52712.2021.9525790](https://doi.org/10.1109/MERCon52712.2021.9525790).
- K.W.C. Piyumi, L.M.M. Jayasekara, H.M.S.T. Herath and H.M.Y.C. Mallikarachchi, “Simulation of deployable solar sails”, *Proceedings of Symposium on Space Science & Technology 2020*, Moratuwa, Sri Lanka, 2 Feb 2021.
- N. Sujeeka, K. Ubamanyu and H.M.Y.C. Mallikarachchi, “Shape reconstruction of solar sails using photogrammetry”, *Proceedings of Symposium on Space Science & Technology 2020*, Moratuwa, Sri Lanka, 2 Feb 2021.
- N. Sujeeka, S. Lowhikan and H.M.Y.C. Mallikarachchi, “Semi-automated crack detection using computer vision”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 25 Aug 2020.
- N. Sujeeka, A. Vithushanthini and C. Mallikarachchi, “3D full-field deformation measuring technique using digital image correlation”, *Moratuwa Engineering Research Conference 2020*, Katubedda, Sri Lanka, 28 - 30 July 2020, doi: [10.1109/MERCon50084.2020.9185343](https://doi.org/10.1109/MERCon50084.2020.9185343).

- C. Piyumi and C. Mallikarachchi, “Influence of intersected fold-lines on thin folded membranes”, *Moratuwa Engineering Research Conference 2020*, Katubedda, Sri Lanka, 28 - 30 July 2020, doi: [10.1109/MERCon50084.2020.9185241](https://doi.org/10.1109/MERCon50084.2020.9185241).
- S. Herath, M. Jayasekera and C. Mallikarachchi, “Parametric Study on the Homogenized Response of Woven Carbon Fibre Composites”, *Moratuwa Engineering Research Conference 2020*, Katubedda, Sri Lanka, 28 - 30 July 2020, [**Best Paper Award in Civil and Environmental Engineering Track**], doi: [10.1109/MERCon50084.2020.9185307](https://doi.org/10.1109/MERCon50084.2020.9185307).
- H.H.N.D. Haggalla, K.I.U. Nanayakkara and H.M.Y.C. Mallikarachchi, “Pressure variations in cylindrical silos due to infill bulk material discharge”, *Proceedings of the Annual Sessions of Institution of Engineers - Sri Lanka*, Colombo, Sri Lanka, 17 - 18 October 2019.
- L.M.M.B. Jayasekera, H.S. Wijesuriya and H.M.Y.C. Mallikarachchi, “Bending behaviour of thin woven fibre composites under high curvatures”, *Proceedings of the Annual Sessions of Institution of Engineers - Sri Lanka*, Colombo, Sri Lanka, 17 - 18 October 2019.
- K.W.C. Piyumi, H.C. Weerasinghe and H.M.Y.C. Mallikarachchi, “Influence of fold-line properties on thin folded membranes”, *Proceedings of the Annual Sessions of Institution of Engineers - Sri Lanka*, Colombo, Sri Lanka, 17 - 18 October 2019.
- H.H.N.D. Haggalla, K.I.U. Nanayakkara and H.M.Y.C. Mallikarachchi, “Simulating dynamic discharge of infill bulk material stored in cylindrical silos”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 20 Aug 2019.
- Saranja N., M. Jayasekera and C. Mallikarachchi, “Nonlinear bending response of two-ply plain woven carbon fibre composites”, *Moratuwa Engineering Research Conference 2019*, Katubedda, Sri Lanka, 3 - 5 July 2019, doi: [10.1109/MERCon.2019.8818844](https://doi.org/10.1109/MERCon.2019.8818844).
- H.S. Wijesuriya, D.C.D.K. Karannagodage, S. Nadarajah and H.M.Y.C. Mallikarachchi, “Predicting bending behaviour of deployable booms made of thin woven fibre composites”, *Proceedings of the Annual Sessions of Institution of Engineers - Sri Lanka*, Colombo, Sri Lanka, 18 - 19 October 2018.
- D.M.S.P. Dassanayake, S. Mierunalan, H.C. Weerasinghe and H.M.Y.C. Mallikarachchi, “Fold-line mechanics of thin-folded membranes”, *Proceedings of the Annual Sessions of Institution of Engineers - Sri Lanka*, Colombo, Sri Lanka, 18 - 19 October 2018.
- O.P.C. Randil, H.S. Wijesuriya, S. Nadarajah and H.M.Y.C. Mallikarachchi, “Measuring full-field 3D deformation with digital cameras”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 14 Aug 2018.
- J.A.A.S. Jayasinghe, H.M.Y.C. Mallikarachchi, S.M.A. Nanayakkara and W.P.S. Dias, “Modelling of corrosion induced cover cracking in concrete with exposed reinforcement”, *Moratuwa Engineering Research Conference 2018*, Katubedda, Sri Lanka, 30 - 31 May 2018, doi: [10.1109/MERCon.2018.8421963](https://doi.org/10.1109/MERCon.2018.8421963).
- O.P.C. Randil and H.M.Y.C. Mallikarachchi, “3D full-field deformation measuring technique with optics-based measurements”, *Moratuwa Engineering Research Conference 2018*, Katubedda, Sri Lanka, 30 - 31 May 2018, doi: [10.1109/MERCon.2018.8421930](https://doi.org/10.1109/MERCon.2018.8421930).
- N. Gangasudan and H.M.Y.C. Mallikarachchi, “Predicting wind response of tall buildings using fluid-structure interaction”, *Moratuwa Engineering Research Conference 2018*, Katubedda, Sri Lanka, 30 - 31 May 2018, doi: [10.1109/MERCon.2018.8421969](https://doi.org/10.1109/MERCon.2018.8421969).

- H.S. Wijesuriya and H.M.Y.C. Mallikarachchi, “Predicting fretting fatigue crack propagation using finite element analysis”, *Moratuwa Engineering Research Conference 2018*, Katubedda, Sri Lanka, 30 - 31 May 2018. [**Best Paper Award in Civil and Environmental Engineering Track**], doi: [10.1109/MERCon.2018.8421886](https://doi.org/10.1109/MERCon.2018.8421886).
- S. Varakini and H.M.Y.C. Mallikarachchi, “Developing a CSD model to study the effect of fold-lines on the camber of bio-inspired membranous wings”, *Proceedings of the 8th International Conference on Structural Engineering and Construction Management*, ICSECM/17/180, Kandy, Sri Lanka, 7 - 9 December 2017.
- S. Varakini, K. Ubamanyu and H.M.Y.C. Mallikarachchi, “Simplified approach for predicting fatigue life of fillet welded joints with FEM”, *Proceedings of the 111th Annual Sessions of the Institution of Engineers, Sri Lanka*, Colombo, Sri Lanka, 23 - 24 October 2017.
- Y.H.M.M. Yapa and H.M.Y.C. Mallikarachchi, “Predicting non-linear bending behaviour of thin woven fibre composites”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 29 August 2017.
- S. Mierunalan and H.M.Y.C. Mallikarachchi, “Prediction of creased geometry of thin folded membranes using finite element analysis”, *Moratuwa Engineering Research Conference 2017*, MERCon2017-S9-6, Katubedda, Sri Lanka, 29 - 31 May 2017. [**Best Paper Award in Civil and Environmental Engineering Track**], doi: [10.1109/MERCon.2017.7980496](https://doi.org/10.1109/MERCon.2017.7980496).
- D.C.D.K. Karannagodage and H.M.Y.C. Mallikarachchi, “Measuring structural dynamics with smartphones”, *Moratuwa Engineering Research Conference 2017*, MERCon2017-S11-5, Katubedda, Sri Lanka, 29 - 31 May 2017, doi: [10.1109/MERCon.2017.7980507](https://doi.org/10.1109/MERCon.2017.7980507).
- B.Y. Dharmadasa and H.M.Y.C. Mallikarachchi, “Finite element simulation of thin folded membrane”, *Proceedings of the 7th International Conference on Sustainable Built Environment*, ICSBE/16/241, Kandy, Sri Lanka, 16 - 18 December 2016.
- A. Diluxshan and H.M.Y.C. Mallikarachchi, “Image based displacement measuring technique for in-plane loading”, *Proceedings of the 7th International Conference on Sustainable Built Environment*, ICSBE/16/141, Kandy, Sri Lanka, 16 - 18 December 2016.
- H.M.S.T. Herath and H.M.Y.C. Mallikarachchi, “Modified ply thickness for classical lamination theory for thin woven fibre composites”, *Proceedings of the 110th Annual Sessions of the Institution of Engineers, Sri Lanka*, Colombo, Sri Lanka, 17 - 18 October 2016.
- K. Ubamanyu and H.M.Y.C. Mallikarachchi, “Predicting residual fatigue life with finite element analysis”, *Proceedings of the 110th Annual Sessions of the Institution of Engineers, Sri Lanka*, Colombo, Sri Lanka, 17 - 18 October 2016.
- B.Y. Dharmadasa and H.M.Y.C. Mallikarachchi, “Simulation of neutral angle in thin folded membranes”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 27 September 2016.
- A. Diluxshan and H.M.Y.C. Mallikarachchi, “Low cost optics based displacement measuring technique”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 27 September 2016.
- K. Ubamanyu and H.M.Y.C. Mallikarachchi, “Simulation of dual-matrix composite booms”, *Proceedings of the Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 27 September 2016 [**Best Paper Award**].

- K.K.G.K.D. Kariyawasam and H.M.Y.C. Mallikarachchi, “Estimation of Fatigue Life of Steel Masts using Finite Element Modelling”, *Civil Engineering Research Symposium, University of Moratuwa*, Moratuwa, Sri Lanka, 22 October 2015.
- W.K.S. Mahendra and H.M.Y.C. Mallikarachchi, “Multi-scale modelling of thin woven composites”, *109th Annual Sessions of the Institution of Engineers, Sri Lanka*, Colombo, Sri Lanka, 19 - 21 October 2015.
- K.K.G.K.D. Kariyawasam and H.M.Y.C. Mallikarachchi, “Simulation Low Cycle Fatigue with Abaqus/FEA”, *International Symposium on Advances in Civil and Environmental Engineering Practices for Sustainable Development*, Galle, Sri Lanka, 9 March 2015.
- P.M. Liyanage and H.M.Y.C. Mallikarachchi, “Folding Patterns for Ultra-thin Deployable Membranes”, *International Symposium on Advances in Civil and Environmental Engineering Practices for Sustainable Development*, Galle, Sri Lanka, 9 March 2015.
- P.M. Liyanage and H.M.Y.C. Mallikarachchi, “Modified spiral folding pattern for ultra-thin deployable membranes”, *5th International Conference on Structural Engineering and Construction Management*, Kandy, Sri Lanka, 12-15 December 2014.
- P.M. Liyanage and H.M.Y.C. Mallikarachchi, “Origami based folding patterns for compact deployable structures”, *4th International Conference on Structural Engineering and Construction Management*, Kandy, Sri Lanka, 13-15 December 2013.
- G.A.U. Perera and H.M.Y.C. Mallikarachchi, “Image based non-contact deformation measuring technique”, *4th International Conference on Structural Engineering and Construction Management*, Kandy, Sri Lanka, 13-15 December 2013.
- H.M.Y.C. Mallikarachchi, “Micromechanical modelling of thin woven fibre composites”, *Proceedings of the Second Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 25 September 2012.
- H.M.Y.C. Mallikarachchi, “Lightweight Deployable Booms for Space Applications”, *Proceedings of the Inaugural Annual Sessions of Society of Structural Engineers - Sri Lanka*, Colombo, Sri Lanka, 22 November 2011.

Invited Talks

- “Design optimization of self-deployable space structures”, Department of Civil Engineering, Institute of Information Technology Sri Lanka, Malabe, 7 August 2018.
- “Finite element modelling and applications”. *Evening seminar - Center of Excellence Exploring, Challenging and Leading*, Plastic and Rubber Institute of Sri Lanka, Rajagiriya, 22 June 2018.
- “Deployable carbon-fiber composite booms”. *James K. Knowles Lecture and Caltech Solid Mechanics Symposium*, Pasadena, California, 27 February 2010.

Featured Articles

- “Moratuwa University starts investigating lightweight materials”, *Lankadeepa News Paper Article*, 30th March 2016 (online version).
- “Stow-and-go for space travel”, *Realistic Simulation News - Dassault Systèmes*, February/March 2012, pp. 18-19.
- “Customer Applications of Realistic Simulation”, *Dassault Systèmes Simulia Calendar*, 2012.
- “Satellite Hardware: Stow-and-Go for Space Travel”, *Advanced Materials & Processes*, Vol. 170(5):40-42, May 2012.
- “Self-deployable, composite satellite boom”, *High-Performance Composites*, November 2011.
- “Stow-and-go for space travel”, featured in design engineering publications: *Advance Materials and Processes*, *Aerospace Manufacturing and Design*, *American Manufacturing*, *Design World*, *Designfax*, *Desktop Engineering and Product Design and Development*, September - November 2011.

Research Supervision

- Postgraduate
 1. M. Sathurshan, “Seismic vulnerability assessment of masonry infilled reinforced concrete school building frames in Sri Lanka”, (M.Sc. in progress)
 2. S.S. Lowhikan, “Analysis and initial design of civil engineering structures using structural optimization”, (M.Sc. in progress)
 3. Sutharsanan N., “Characterising coiling and dynamic uncoiling behaviour of tape-springs”, (M.Sc. in progress)
 4. Nishangani Gowrikanthan, “Predicting mechanical properties of ultra-thin woven fibre composite under extreme curvatures”, (M.Sc. in progress)
 5. H.M.D.K. Wijethunga, “Characterization of fold mechanics of ultra-thin polyimide films”, (M.Sc. in progress)
 6. H.H.N.D. Haggalla, “Coiling and deployment mechanics of tape-springs”, M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, December 2021.
 7. Sujeeka N., “Measuring full-field deformation of hyperelastic materials using digital image correlation”, M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, August 2021.
 8. H.H.H. Hasalanka, “Assessment of structural safety of Sri Lankan hospitals of Sri Lankan hospitals under natural hazards - Tsunami as a Case Study”, M.Phil. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2021.
 9. D.M.S.P. Dassanayake, “Investigation of creases in ultra-thin membranes”, M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, October 2019.
 10. H.S. Wijesuriya, “Predicting non-linear bending behaviour of ultra-thin woven fibre composites”, M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, August 2019.

11. K.D.C.D. Kumara, "Predicting bending behaviour of deployable booms made of thin woven fibre composites", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, December 2018.
12. S. Varakini, "Developing a numerical model of a thin flexible structure immersed in a fluid domain", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, September 2018.
13. S. Mierunalan, "Prediction of mechanical properties of creases in thin folded membranes", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, August 2018.
14. A. Diluxshan, "Optics based low cost full-field displacement measuring technique", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, December 2017.
15. K. Ubamanyu, "Simulation of closed cross-section dual-matrix composite booms", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, August 2017.
16. B.Y.Dharmadasa, "Simulation of fold-line stiffness in deployable membranes", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2017.
17. P.M. Liyanage, "Modelling of the deployment behaviour of highly compacted ultra-thin membranes", M.Sc. thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, September 2015.

- Undergraduate

1. S. Kohulan, "Point cloud based analysis and validation of as-design versus as-built drawings", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2022.
2. I.T. Amarasinghe, "Structural optimization of a wheel loader arm", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2022.
3. T. Prathapan, "Finite element modelling of cylindrical silos with infill bulk material", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2022.
4. W.U.D. Weerasinghe, "Homogenization of ultra-thin woven composite structures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2022.
5. Nishangani Gowrikanthan, "Folding mechanics of ultra-thin woven composite structures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2021.
6. Sutharsanan N., "Self-opening mechanism of creased membranes", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2021.
7. S. Lowhikan, "3D full field deformation measurement using Digital Image Correlation", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2021.
8. T.D. Dissanayake, "Finite element modelling of cylindrical silos with infill bulk material", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, July 2021.

9. L.M.M.B. Jayasekara, "Non-linear bending behaviour of thin woven fibre composites under high curvatures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, February 2020.
10. K.W.C. Piyumi, "Influence of fold-line properties on thin-folded membranes", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, February 2020.
11. Vithushanthini A., "Developing a full-field deformation measurement system with digital cameras", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, February 2020.
12. H.H.N.D. Haggalla, "Pressure variations in cylindrical silos due to infill bulk material discharge", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, February 2020.
13. Sujeeka Nadarajah, "A cost-effective full-field displacement measuring technique based on feature detection", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2019.
14. Saranja Nadarajah, "Predicting non-linear bending behaviour of thin woven fibre composite materials", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2019.
15. H.C. Weerasinghe, "Efficient folding pattern for radially deployed square solar sails", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2019.
16. N. Gangasudan, "Prediction of wind response of tall buildings using fluid-structure interaction", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2018.
17. W.S.G. Fernando, "3D finite element modelling of wall pressure exerted due to infill bulk material on cylindrical silos", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2018.
18. O.P.C. Randil, "Reconstruction of 3D surfaces with optics based measurements", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2018.
19. J.A.A. Sankalpa, "Modelling of corrosion induced cover cracking in concrete with exposed reinforcement", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2018.
20. H.S. Wijesuriya, "Predicting fretting fatigue crack propagation using finite element analysis", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, January 2018.
21. K.D.C.D. Kumara, "Cost effective non-destructive measurement systems for civil engineering applications", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2017.
22. S. Mierunalan, "Simulation of deployable membranes", Undergraduate research project, Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2017.
23. M.S.E. Silva, "Simulation of closed cross-section flexible deployable booms", Undergraduate research project, Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2017.

24. S. Varakini, "Predicting fatigue life with finite element analysis", Undergraduate research project, Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2017.
25. Y.H.M.M. Yapa, "Predicting bending stiffness of thin woven fibre composites", Undergraduate research project, Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2017.
26. B.Y.Dharmadasa, "Simulation of crease behaviour in thin membranes", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2016.
27. A.Diluxshan, "Optics based non-contact displacement measuring technique", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2016.
28. H.M.S.T. Herath, "Multi-scale modelling of two-ply plain woven fibre composites", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2016.
29. K. Ubamanyu, "Predicting fatigue life of steel structures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, April 2016.
30. K.K.G.K. Danushka, "Estimation of fatigue life of steel masts using finite element modelling", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, May 2015.
31. D.G.A. Kumara, "Image based non-contact deformation measuring technique", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, May 2015.
32. W.K.S. Mahendra, "Multi-scale modelling of thin woven composites", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, May 2015.
33. T. Thushanth, "Analysis of thickness effect of deployable membrane structures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, May 2015.
34. P.M. Liyanage, "Origami based folding patterns for compact deployable structures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, March 2014.
35. H.M.P.M.B. Herath, "Image based evaluation technique for particle size analysis of granular materials", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, March 2014.
36. G.A.U. Perera, "Image based non-contact deformation measuring technique", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, March 2014.
37. O.S. Wanniarachchi, "Fatigue limits for tall steel structures", Undergraduate thesis, Department of Civil Engineering, University of Moratuwa, Moratuwa, Sri Lanka, March 2014.