

W. A. Dumith Madushanka Jayathilaka

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Education

National University of Singapore

Doctor of Philosophy

Singapore
Jan 2017 – Sep 2021

- Department of Mechanical Engineering
- Cumulative Average Point: 4.42 out of 5.0
- Award of commonwealth scholarship for a period of 48 months for graduate studies in National University of Singapore
- Thesis title: Electrospinning for Flexible Light Emitting Materials
- Thesis: <https://scholarbank.nus.edu.sg/handle/10635/200289>

University of Moratuwa

Bachelor of Science of Engineering (Hons)

Moratuwa, Sri Lanka
Jun 2010 – May 2015

- Study Emphasize: Mechanical Engineering
- Academic standing: First class
- Overall GPA: 3.83 out of 4.2
- Awards: Gold Medal for the Mechanical Engineering Graduated who has obtained the highest overall GPA of 3.8 or above at the B.Sc. Engineering Honours Degree Examinations

Experience

University of Moratuwa,

Department of Mechanical Engineering

Senior Lecturer

Moratuwa, Sri Lanka
Oct 2021 - Now

- ME 3012 – Control Systems & Instrumentation
- ME 3202 – Machine Design Project
- ME 3270 – Virtual Instrumentation

National University of Singapore

Centre for Nanotechnology and Sustainability.

Graduate research student

Singapore
Jan 2017 – Sep 2021

- Design, fabrication and testing of a flexible light emitting device (Alternative Current Electroluminescence device) with nanofiber electrospinning technique
- Design, fabrication and testing of a nanofiber based radiative cooling film for building/textiles
- Fabrication of electrospun nanofiber based piezoelectric device for energy harvesting applications
- Familiarization with electrospinning methods and its variants, FESEM, SEM, UV-Vis spectroscopy, TEM, conductivity analysis etc.

National University of Singapore

Department of Mechanical Engineering

Graduate Tutor/ Instructor

Singapore
Aug 2017 – May 2019

- Graduate tutor – ME 3112-Mechanics of Machines
- Instructor – EG 1111 & EG 1112 – Engineering Principles and Practices I & II

University of Moratuwa,

Department of Mechanical Engineering

Lecturer (Contract)

Moratuwa, Sri Lanka
Apr 2016 – Dec 2016

- ME 1802 – Manufacturing Engineering
- ME 2850 – Fundamentals of Machine Element Design
- ME 4700 – Micro/Nano Electromechanical Systems
- ME 4342 – Mechatronics Systems
- ME 2153 – Design of Machine Elements

University of Moratuwa

Department of Mechanical Engineering

Temporary Lecturer

Moratuwa, Sri Lanka
Oct 2015 – Mar 2016

- ME 1802 – Manufacturing Engineering
- ME 3812 – Machine Design
- ME 4700 – Micro/Nano Electromechanical Systems
- ME 4492 – Advanced Automation Systems
- ME 2040 – Fundamentals of Mechatronics

Publications (Book Chapter)

- **W. A. D. M. Jayathilaka**, A. Chinnappan, & S. Ramakrishna (2021). Electrospinning of luminescence nanofibers: Current and future trends in wearable light-emitting devices. In Y. Dong, A. Baji, & S. B. T.-E. P. and C. Ramakrishna (Eds.), *Electrospun Polymers and Composites* (pp. 383–404). Elsevier. <https://doi.org/10.1016/B978-0-12-819611-3.00012-1>

Publications (Journals)

- **W. A. D. M. Jayathilaka**, A. Chinnappan, J. Dongxiao, R. Ghosh, T. Q. Tran, S. Ramakrishna, “Facile and Scalable Electrospun Nanofiber based Alternative Current Electroluminescence (ACEL) Device”, *ACS Appl. Electron. Mater.*, 3, 1, 267–276, 20
- **W.A.D.M. Jayathilaka**, A. Chinnappan, J. N. Tey, J. Wei, S. Ramakrishna, “Alternative current electroluminescence and flexible light-emitting devices”, *J. Mater. Chem. C*, 7, 5553-5572, 2019
- **W. A. D. M. Jayathilaka**, A. Chinnappan and S. Ramakrishna, “A review of properties influencing the conductivity of CNT/Cu composites and their applications in wearable/flexible electronics”, *J. Mater. Chem. C*, 5, 9209–9237, 2017
- **W. A. D. M. Jayathilaka**, K. Qi, Y. Qin, A. Chinnappan, W. Serrano- García, C. Baskar, H. Wang, J. He, S. Cui, S. W. Thomas, and S. Ramakrishna, “Significance of Nanomaterials in Wearables: A Review on Wearable Actuators and Sensors”, *Adv. Mater.*, vol. 31, no. 7, p. 1805921, 2019
- **W. A. D. M. Jayathilaka**, A. Chinnappan, R. Ghosh, C. Baskar, and S. Ramakrishna, “Highly Efficient Polystyrene/Metal Oxide Fiber Composites for Passive Radiative Cooling”, *Adv. Eng. Mat.*, (*Accepted*)
- S. K. Eshkalak, A. Chinnappan, **W. A. D. M. Jayathilaka**, M. Khatibzadeh, E. Kowsari, and S. Ramakrishna, “A review on inkjet printing of CNT composites for smart applications,” *Appl. Mater. Today*, vol. 9, pp. 372–386, Dec. 2017
- A. Chinnappan, J. Dongxiao, **W. A. D. M. Jayathilaka**, C. Baskar, X. Qin, and S. Ramakrishna, “Facile synthesis of electrospun C@NiO/Ni nanofibers as an electrocatalyst for hydrogen evolution reaction,” *Int. J. Hydrogen Energy*, vol. 43, no. 32, pp. 15217–15224, Aug. 2018
- W. Serrano-Garcia, **W.A.D.M. Jayathilaka**, A. Chinnappan, et al “Nanocomposites for electronic applications that can be embedded for textiles and wearables,” *Sci. China Technol. Sci.*, vol. 62, no. 6, pp. 895–902, Jun. 2019
- R. T. Selvan, **W. A. D. M. Jayathilaka**, A. Hilaal, and S. Ramakrishna, “Improved Piezoelectric Performance of Electrospun PVDF Nanofibers with Conductive Paint Coated Electrode,” *Int. J. Nanosci.*, vol. 19, no. 02, p. 1950008, Apr. 2020
- M. Baghali, **W. A. D. M. Jayathilaka**, and S. Ramakrishna, “The Role of Electrospun Nanomaterials in the Future of Energy and Environment,” *Materials (Basel)*, vol. 14, no. 3, p. 558, Jan. 2021
- L. Jingcheng, V. S. Reddy, **W. A. D. M. Jayathilaka**, A. Chinnappan, S. Ramakrishna, and R. Ghosh, “Intelligent Polymers, Fibers and Applications,” *Polymers (Basel)*, vol. 13, no. 9, p. 1427, Apr. 2021
- S. K. Das, A. Chinnappan, **W. A. D. M. Jayathilaka**, R. Ghosh, C. Baskar, and S. Ramakrishna, “Challenges and Potential Solutions for 100% Recycling of Medical Textiles,” *Materials Circular Economy*, vol. 3, no. 13, 2021
- R. T. Selvan, C. Y. Jia, **W. A. D. M. Jayathilaka**, A. Chinappan, H. Alam, and S. Ramakrishna, “Enhanced Piezoelectric Performance of Electrospun PVDF-MWCNT-Cu Nanocomposites for Energy Harvesting Application,” *Nano*, vol. 15, no. 04, p. 2050049, Apr. 2020
- A. Chinnappan, J. K. Y. Lee, **W. A. D. M. Jayathilaka**, and S. Ramakrishna, “Fabrication of MWCNT/Cu nanofibers via electrospinning method and analysis of their electrical conductivity by four-probe method,” *Int. J. Hydrogen Energy*, vol. 43, no. 2, pp. 721–729, Jan. 2018

Publications (Conference papers)

- V.C. Jayanetti, **W.A.D.M. Jayathilaka**, K.I. Thalawatta, Y.W.R. Amarasinghe, “Design and Simulation of a MEMS Based Dual Axis Capacitive Accelerometer”, *Proceedings of Moratuwa Engineering Research Conference (MERCon)*, 194 – 198 (2015), DOI 10.1109/MERCon.2015.7112344
- B.A.D.J.C.K. Basnayake, **W.A.D.M. Jayathilaka**, Y.W.R. Amarasinghe, R.A. Attalage, A.G.B.P. Jayasekara, “Smart Solar Tracking and On-Site Photovoltaic Efficiency Measurement System”, *Proceeding of Moratuwa Engineering Research Conference (MERCon)*, 54 – 59 (2016), DOI 10.1109/MERCon.2016.7480115