

Thamasha Samarasinghe

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Academic Appointments

Senior Lecturer

Mar 2025 – Present

Department of Mechanical Engineering, University of Moratuwa, Sri Lanka

- Teaching core and advanced undergraduate and postgraduate modules in thermofluids, energy systems, and aerospace-related subjects.
- Current teaching portfolio includes:
 - Fundamentals of Engineering Thermodynamics
 - Heat Transfer; Heat and Mass Transfer; Heat Transfer and Applications (Postgraduate)
 - Energy Systems Engineering; Energy Conservation
 - Refrigeration and Air Conditioning
 - Turbo Machinery and Aircraft Propulsion
 - Aircraft Systems and Maintenance
 - Design / Research Project and Machine Design Project (project-based and final-year supervision)
- Supervision of undergraduate final-year projects and postgraduate research projects.
- Development, coordination, and delivery of course curricula, assessments, and learning materials in alignment with departmental and accreditation requirements.
- Contribution to academic administration, curriculum review, and quality assurance activities within the department.

Education

PhD in Mechanical Engineering

Sep 2019 – Feb 2024

Brunel University London, United Kingdom

National Structural Integrity Research Centre (NSIRC), Cambridge, United Kingdom

Thesis Title: Design and Development of Composite Battery Casing with Variable Thermal Conductivity for Li-Ion Battery Modules

MPhil in Mechanical Engineering

Sep 2017 – Jul 2019

University of Liverpool, United Kingdom

Thesis Title: Airflow Resistivity Measurement of Alkaline Earth Silicate Materials Between Room Temperature and 800°C

BSc (Hons) in Mechanical Engineering – Second Class Upper

Jul 2011 – Apr 2016

University of Moratuwa, Sri Lanka

Professional Qualifications

- Chartered Engineer (CEng) and Member, Institution of Mechanical Engineers (IMechE), UK
- Passed Finalist, Chartered Institute of Management Accountants (CIMA)
- Peer Review Excellence Training Graduate, Institute of Physics (IOP) Publishing

Research Experience

Doctoral Researcher (PhD)

Oct 2019 – Feb 2024

Brunel University London, United Kingdom;

National Structural Integrity Research Centre (NSIRC), Cambridge, United Kingdom;

TWI Ltd, United Kingdom

- Conceived, designed, and executed an original doctoral research programme focused on advanced thermal management of Li-ion battery modules using composite enclosures with spatially variable thermal conductivity.

- Developed high-fidelity, multiphysics Computational Fluid Dynamics (CFD) and Finite Element Method (FEM) models of battery modules and composite casings using *COMSOL Multiphysics*, enabling coupled thermal, electrical, and structural analyses.
- Designed and fabricated novel composite battery enclosures incorporating embedded thermal bridges, employing hand lay-up and resin infusion manufacturing techniques.
- Planned and conducted controlled thermal experiments to characterise effective thermal conductivity and heat dissipation performance under realistic operating conditions.
- Performed rigorous statistical analysis and uncertainty quantification of experimental and numerical data to validate modelling approaches.
- Established model–experiment correlations and conducted parametric optimisation studies to identify design configurations with enhanced thermal performance.
- Contributed to high-impact journal publications and international conference presentations arising from doctoral research outcomes.
- Received formal training in doctoral supervision, research integrity, and academic leadership through the Brunel Graduate School.

MPhil Researcher

Oct 2017 – Jul 2019

University of Liverpool, United Kingdom

Morgan Technical Ceramics Limited, United Kingdom

- Led an independent research project investigating airflow resistivity of acoustic fibrous materials at temperatures up to 800°C for high-temperature acoustical applications.
- Designed and commissioned a bespoke high-temperature experimental test rig capable of stable operation at elevated temperatures.
- Developed empirical and data-driven models for airflow resistivity using advanced statistical and Bayesian inference techniques.
- Implemented numerical simulations using *MATLAB*, *COMSOL Multiphysics*, and Autodesk tools to support experimental findings.
- Produced peer-reviewed journal publications and international conference contributions based on the research outcomes.

Research Assistant

Apr 2016 – Jul 2017

Department of Mechanical Engineering, University of Moratuwa, Sri Lanka

- Contributed to multidisciplinary research projects involving automated microscopic imaging systems for debris separation and tuberculosis (TB) screening applications.
- Designed and implemented image processing and automation algorithms using *Java* and *Python*.
- Supported experimental system integration, data acquisition, and performance evaluation.
- Co-authored peer-reviewed conference publications resulting from project outcomes.

Industry Experience

Design Analyst Engineer

Apr 2023 – Feb 2025

Advanced Innovative Engineering (UK) Ltd, United Kingdom

- Played a key role in the design, analysis, and verification of advanced rotary (Wankel-type) engine power units for aerospace, transportation, and power-generation applications.
- Led and contributed to detailed Computational Fluid Dynamics (CFD) and thermal analyses of induction and exhaust systems, cooling jackets, impellers, and heat rejection components using *OpenFOAM*, *ANSYS*, and in-house tools.
- Conducted coupled 1D and 3D simulations for complete cooling system architectures, including radiator, pump, fan sizing, and system-level thermal performance optimisation.
- Designed and analysed helicopter engine components with emphasis on thermal integrity, structural reliability, and acoustic performance.
- Developed acoustic and vibration performance models to support noise mitigation and compliance with application-specific requirements.
- Prepared detailed technical reports, design justifications, and verification documentation for internal design reviews and external stakeholders.

- Supported experimental validation activities through hands-on testing of rotary engine components and correlation of experimental data with numerical models.
- Worked closely with multidisciplinary teams, including mechanical designers, test engineers, and project leads, contributing to design iterations and performance improvements.

Mechanical Engineering Intern

Sep 2014 – Apr 2015

Abans Engineering (Pvt) Ltd, Sri Lanka

- Involved in the design and implementation of Variable Refrigerant Flow (VRF) based air-conditioning systems for commercial and residential buildings.
- Performed cooling load calculations, equipment selection, and system layout design using Mitsubishi Electric design software.
- Acted as a site trainee engineer for the *Seven Sense Luxury Apartments* project in Colombo, gaining hands-on exposure to installation practices, site coordination, and commissioning activities.
- Assisted in coordination between contractors, consultants, and suppliers during system installation.

Consultancy & Professional Service

Consultant – Air Conditioning System Design

Oct 2025 – Present

Teaching Hospital Kalutara, Sri Lanka

- Design and evaluation of air-conditioning and ventilation systems for clinical environments, including Accident and Emergency (A&E) treatment units.
- Cooling load calculations, system configuration, and equipment selection in compliance with health-care and safety standards.
- Coordination with hospital administrators, architects, and service engineers during the design and review stages.

Consultant – HVAC Duct Layout Design (Auditorium)

Oct 2025 – Present

District Secretariat Building, Galle, Sri Lanka

- Design and optimisation of HVAC duct layouts for a large-capacity auditorium.
- Review of airflow distribution, diffuser placement, spatial constraints, and acoustic considerations.
- Technical input during design validation and approval processes.

Member – Resource Pool of Experts

Sep 2025 – Present

Ministry of Science and Technology, Sri Lanka

- Providing expert technical input for nationally relevant science, engineering, and innovation initiatives.
- Supporting technical evaluations, feasibility assessments, and advisory activities as required by the Ministry.

Technical Evaluation Committee (TEC) Member

Jun 2025 – Aug 2025

Sri Lanka Rupavahini Corporation

- Served as a member of the Technical Evaluation Committee for the inspection, assessment, renovation, and painting of a 35 m high broadcast transmission tower.
- Evaluated technical proposals related to structural condition assessment, surface preparation, corrosion protection, and safety methodologies for working at height.
- Reviewed contractor compliance with technical specifications, safety standards, and work methodologies.
- Contributed to technical deliberations and recommendation reports for procurement and project execution.

Bid Evaluation Committee (BEC) Member

Jun 2025 – Present

University of Moratuwa, Sri Lanka

- Technical evaluation of procurement bids related to mechanical engineering systems and services.
- Review of technical specifications, cost justifications, and compliance with institutional procurement procedures.
- Supporting transparent and technically sound procurement decision-making.

Visiting Lecturer

Jun 2025 – Present

International College of Business and Technology (ICBT),

General Sir John Kotelawala Defence University (KDU),
ESOFT Metro Campus, Sri Lanka
CINEC Campus (Pvt) Ltd

- Delivering lectures and academic support in Mechanical Engineering-related subjects.
- Conducting tutorials, assessments, and student academic guidance.
- Engaging with diverse student cohorts across multiple higher education institutions.

University-Based Air Conditioning Design Projects

Ongoing

University of Moratuwa, Sri Lanka

- Computational Mechanics Laboratory, Department of Civil Engineering.
- New Auditorium 1 (NA1) and New Auditorium 2 (NA2) lecture halls.
- Pediatric and Gynecology Units, Gallassa Maternity and Children's Teaching Hospital.
- Server Room Air Conditioning Design, Centre for Information Technology Services (CITeS).
- Lecture Rooms and Dean's Office, Teaching Hospital Kalutara.
- Responsibilities included cooling load estimation, system selection, layout design, and technical review.

Peer Reviewer

Feb 2025 – Present

International Journal of Energy Research

- Peer reviewing journal manuscripts in the areas of heat transfer, thermofluids, and energy systems.
- Providing constructive and rigorous technical feedback to support high-quality scholarly publication.

Publications

Journal Articles

1. Samarasinghe, T., Abeykoon, C., Turan, A. *Modelling of Heat Transfer and Fluid Flow in the Hot Section of Gas Turbines Used in Power Generation*. International Journal of Energy Research. DOI: <https://doi.org/10.1002/er.4296>
2. Samarasinghe, T., Hopkins, C., Seiffert, G., Knox, J. *Airflow Resistance Measurement of Fibrous Materials at High Temperatures for Acoustical Applications*. Applied Acoustics. DOI: <https://doi.org/10.1016/j.apacoust.2020.107255>
3. Samarasinghe, T., Herath, S. *A Bayesian Technique for Learning the Airflow Resistance of Acoustic Fibrous Materials at High Temperatures*. Building Acoustics. DOI: <https://doi.org/10.1177/1351010X241305948>
4. Samarasinghe, T., Kazilas, M., Lewis, S. *Advanced Thermal Management in Li-Ion Batteries Using Composite Enclosures with Embedded Thermal Bridges*. Journal of Composite Materials. DOI: <https://doi.org/10.1177/00219983251377212>

Conference Papers and Abstracts

1. Samarasinghe, T., Kazilas, M., Lewis, S. *Optimising Thermal Performance: A Novel Approach to Battery Cooling in Electric and Hybrid Vehicles*. 18th UK National Heat Transfer Conference, September 2024. Available at: <http://bura.brunel.ac.uk/handle/2438/29988>
2. Samarasinghe, T., Lewis, S., Kazilas, M. *Thermal and Heat Transfer Modelling of Lithium-Ion Battery Module During Discharge Cycle*. COMSOL Conference 2020 (Online).
3. Samarasinghe, T., Hopkins, C., Seiffert, G., Knox, J. *Airflow Resistance Measurements Between Room Temperature and 800°C*. International Congress of Acoustics (ICA 2019), Aachen, Germany. DOI: <https://doi.org/10.18154/RWTH-CONV-239401>
4. Samarasinghe, T., Sampath, L.L.R., Thilakarathna, H.R.M.V.B., Gopura, R.A.R.C., Lalitharatne, T.D., Amarasinghe, Y.D.R. *Development of an Automated Microscopic Imaging System for TB*

Screening. International Conference in Electrical Engineering, Colombo, Sri Lanka, 2016. Available at: <https://ieeexplore.ieee.org/document/7830927>

Communication & Engagement

- Participated in the *Regional Erasmus+ Cluster Meeting and Contact-Making Seminar 2025 for Asia, the Middle East and the Pacific*, organised by the Directorate-General for Education, Youth, Sport and Culture of the European Commission and the European Education and Culture Executive Agency (EACEA), held on 18–19 November 2025.
- Presented at the International Conference on Empowering Women in STEAM (ICEWSTEAM 2025), Jaipur, India (2025).
- Panelist at the 11th International Conference on Moratuwa Engineering Research Conference (MERCon 2025) (2025).
- Presented at the 15th International Conference on Computational Heat and Mass Transfer, Antalya, Türkiye (2025).
- Presented at the UK Heat Transfer Conference (UKHTC), Birmingham, United Kingdom (September 2024).
- Delivered three conference presentations at the NSIRC Annual Conference (2021, 2022, 2023).
- Presented at the International COMSOL Conference (2020).
- Presented at the International Conference in Electrical Engineering, Colombo, Sri Lanka (2016).
- University Winner – Speak Out for Engineers (SOFE) Competition (2016).

Technical Skills

Thermal and Fluid Sciences

Heat Transfer, Mass Transfer, Thermodynamics, Energy Systems, Battery Thermal Management, Advanced Cooling Technologies, HVAC and Refrigeration Systems, Thermal Characterisation and Performance Evaluation

Computational Modelling and Simulation

Computational Fluid Dynamics (CFD), Finite Element Analysis (FEA), Multiphysics Modelling, Coupled Thermal–Structural Analysis, System-Level Thermal Modelling, Parametric Studies and Optimisation

Software and Numerical Tools

COMSOL Multiphysics, ANSYS, OpenFOAM, MATLAB, MATLAB Simulink, Autodesk Mechanical

Programming and Data Analysis

Python, C, C++, Java, MATLAB, R, Visual Basic (VB), Statistical Data Analysis, Bayesian Modelling, Regression Analysis

Experimental Methods and Laboratory Skills

Design and Fabrication of Experimental Test Rigs, High-Temperature Thermal Testing, Instrumentation and Data Acquisition, Composite Fabrication (Hand Lay-up, Resin Infusion), Experimental Validation and Uncertainty Analysis

Computer-Aided Design and Engineering Tools

AutoCAD, SolidWorks, Technical Drawing Interpretation, Mechanical System Layout Design

Project and Research Management

Research Project Planning and Execution, Industry–Academia Collaborative Projects, Technical Documentation and Reporting

Information Technology and Computing

Microsoft Office Suite, Linux and Windows Operating Systems, Parallel Computing and High-Performance Computing Environments, Database Management using Microsoft SQL

Media & Outreach

- Featured in the “*I Am Brunel*” Profile, Brunel University London (2025), recognising academic journey, research contributions, and professional impact.
Available at: <https://www.brunel.ac.uk/people>
- Featured in *NSIRC News* highlighting research outcomes and industry collaboration during tenure at Advanced Innovative Engineering (AIE), United Kingdom (2024).
Available at: <https://www.nsirc.ac.uk/news>
- Featured in *TWI / NSIRC – IMechE Collaboration News* for contributions to industry–academia collaborative research and engineering practice (2024).
Available at: <https://www.twi-global.com>
- Featured in the *University of Liverpool Alumni Magazine* showcasing academic progression and postgraduate research achievements (2024).
Available at: <https://www.liverpool.ac.uk/alumni>
- Featured by the *London South Bank University Acoustics Group* in relation to external examining and collaborative research activities (2019).
Available at: <https://www.lsbu.ac.uk>
- Featured in the *Lankadeepa Encyclopedia* (Sri Lanka) under the entry “Moratuwa Shishu Swayan Kariya Anviksayaka Nipada Wathi” for contributions to engineering research and innovation (2017).
- Active dissemination of research outputs through invited conference presentations, panel discussions, and public academic forums at national and international levels.
- Research visibility and scholarly dissemination through online academic platforms:
Google Scholar: <https://scholar.google.com/citations?user=DKFTtZEAAAAJ>
LinkedIn: <https://www.linkedin.com/in/thamasha-samarasinghe-aaa4b962/>

Academic Leadership, Service & Professional Roles

Faculty Academic Committee (FAC) Representative 2026 – Present
Department of Mechanical Engineering, University of Moratuwa, Sri Lanka

- Serving as the departmental representative to the Faculty Academic Committee (FAC).
- Participating in faculty-level academic decision-making related to curriculum matters, academic regulations, and quality assurance.
- Acting as a liaison between the Department of Mechanical Engineering and the Faculty on academic policy and governance matters.

Group Coordinator – Pre-Academic Term (PAT) 2025 – Present
Faculty of Engineering, University of Moratuwa, Sri Lanka

- Serving as a Group Coordinator for the Pre-Academic Term programme, providing academic guidance, mentoring, and coordination support for incoming undergraduate students.
- Responsible for student engagement, academic orientation, and coordination with departmental and faculty-level academic staff.

IESL Moderator – IESL Re-Accreditation Process 2025
Department of Mechanical Engineering, University of Moratuwa

- Served as a moderator for the Department of Mechanical Engineering, during the IESL re-accreditation process.
- Responsible for moderation and review of course materials, assessments, and academic documentation in compliance with IESL accreditation requirements.
- Contributed to departmental quality assurance and professional accreditation activities.

Track Co-Chair – Thermofluids Track 2025
Mechanical Engineering Research Symposium (MERS 2025), University of Moratuwa

- Serving as Track Co-Chair for the Thermofluids track at the Mechanical Engineering Research Symposium (MERS) 2025.
- Coordinating paper review processes, reviewer assignments, and technical evaluation of submissions within the thermofluids domain.
- Supporting technical programme development and session organisation.

- Symposium website: <https://mers-dome.uom.lk/index.html?v=5>

Technical Committee Member and Organising Team Member

2025

Mechanical Engineering Research Symposium (MERS 2025), University of Moratuwa

- Serving as a member of the Technical Committee and Organising Team for MERS 2025.
- Contributing to symposium planning, technical coordination, scheduling, and execution of conference activities.
- Supporting peer-review coordination, programme finalisation, and overall event management.
- Symposium website: <https://mers-dome.uom.lk/index.html?v=5>

Leadership & Extracurricular Activities

- **Google Local Guide – Level 9:** Long-term contributor to Google Maps, providing reviews, photographs, and location updates to support public information sharing and digital outreach.
- **Senior Prefect** – Kalutara Balika National School, Sri Lanka (2004–2009), demonstrating early leadership, responsibility, and student governance.
- **Team Member** – School Debate Team, Media Unit, and General Knowledge Team, Kalutara Balika National School (2005–2007), contributing to communication, teamwork, and public engagement activities.
- **Student Radio Presenter** – Lakhanda Radio Sri Lanka (2002–2004), gaining early experience in public communication, programme presentation, and audience engagement.

References

Available upon request.