

# Editorial Preface: International Conference on Multidisciplinary Engineering and Scientific Research 2026 (ICMESR 2026)

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It gives us great pleasure to present this volume of proceedings from the International Conference on Multidisciplinary Engineering and Scientific Research 2026 (ICMESR 2026), held on 18–19 May 2026. The conference was organized by Pravara Rural Engineering College, Loni, Ahilyanagar, Maharashtra, India which is affiliated to Savitribai Phule Pune University. It was organized jointly with the Technology Research and Innovation Centre, Pune, India and Government Polytechnic, Afzalpur, Dist. Kalburgi, Karnataka, India.

Engineering today is multidisciplinary in nature. This volume proves the point well. It contains eleven papers. These papers come from mechanical engineering, automation & robotics, civil engineering and computer science. The topics covered are also wide. They include thermal management, machine learning, computer vision, robotics, manufacturing, cybersecurity, game theory and web-based systems. Read together, these papers give a good picture of applied engineering research today. The work is practical. It is driven by computing. And it is meant to work in the real world, not only in the laboratory. The first two papers deal with energy and manufacturing problems. Motghare and Kulkarni study the thermal management of cylindrical lithium-ion battery cells. They use a CFD approach with a dual-layer phase change material made of RT-35 and RT-42. This work is useful for reducing the risk of thermal runaway in electric vehicle batteries. George and George present the second paper. They optimize CNC dry milling parameters for MSS 410 and MSS 420 stainless steels using the Taguchi method. Their focus is on machining temperature. This work supports cleaner, coolant-free machining.

The next two papers are on robotics. Kochar et al. design and test a modular autonomous delivery robot. This robot is meant for healthcare and industrial use. Warat et al. write a review paper on autonomous delivery robots for last-mile logistics. They cover navigation, optimization and also how people accept these robots in public places.

Two papers deal with medical image processing. Prakruthi et al. study retinal vessel analysis. Their goal is early detection of Retinopathy of Prematurity, a serious eye disease in premature babies. Pavan et al. present a paper on glaucoma detection. They use a cup-to-disc ratio-based image processing method, tested on the DRISHTI-GS and ACRIMA datasets. Both papers show how image processing can help doctors detect disease early.

One paper is from civil engineering and one is from cybersecurity. Dhapekar and Prakash present a deep learning framework for crack detection and width measurement in concrete structures. This is useful for structural health monitoring. Azmeera et al. present a framework for cybersecurity awareness in

healthcare small and medium enterprises. Their approach is AI-enabled and focused on human behavior. This sector often does not get enough attention on security, so this work is timely.

The last three papers cover computing and software systems. Gupta reviews game theory approaches for resource allocation in cloud and AI systems. This links an old theory to a new problem. Sriram et al. describe a web-based Student Transit Portal. This system helps manage seasonal native-place travel for hostel students. It is a simple and useful system for colleges. The last paper is by Animon et al. They present EMOSIC, an emotion-based music player. It uses Haar cascade face detection along with a deep CNN. This shows how AI is now entering even our daily entertainment.

Every paper in this volume went through peer review before acceptance. We thank all the reviewers for their time and careful comments. We thank the management and faculty of Pravara Rural Engineering College, Loni, for hosting this conference. We thank our partner institutions, Government Polytechnic, Afzalpur and the Technology Research and Innovation Centre, Pune, for their support. We also thank the organizing committee and technical committee for their hard work. Most of all, we thank the authors. Without their research, this volume would not exist.

We hope this volume is useful to students, teachers and researchers. We hope it gives new ideas to people working in these fields. We look forward to more editions of this conference in the coming years.

## Peer Review Statement

All papers in this volume went through a single-blind peer review process. This process was carried out before any paper was accepted for the inclusion in this conference proceedings. The detailed statistics is as below.

|                                   |        |
|-----------------------------------|--------|
| Number of full papers received    | : 41   |
| Number of papers rejected at desk | : 12   |
| Number of papers reviewed         | : 29   |
| Number of reviews per paper       | : 02   |
| Number of papers accepted         | : 11   |
| Acceptance rate                   | : 27 % |

### **Editors**

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