

Dear readers,

On the horizon of technological innovation, additive manufacturing emerges as a beacon, illuminating the path towards new advancements in multiple fields. In this edition, we delve into the depths of this fascinating world, exploring how the response to tension/compression of stainless steel 316L, manufactured through this method, triggers significant transformations. Additionally, delving into predictions of abrasive wear and the surface hardness of printed parts through technologies like SLA (stereolithography apparatus), we envision a future where precision and efficiency converge. Electrical engineering, the driving force of progress, presents us with dizzying contributions. From evaluating nonlinear optimization models for the economic dispatch of isolated microgrids to the application of artificial intelligence algorithms like YOLOv5 in identifying hotspots in electrical substations through thermal images, we witness an era in which technology redefines the boundaries of what is possible. The classification of vital elements in electrical systems based on centrality measures in networks and linegraph transformation represents a crucial step towards energy efficiency and safety. Computer engineering becomes the symphony that blends logic and innovation. Creating custom algorithms for dynamic optimization in last-mile delivery route planning opens doors to unprecedented operational efficiency. This field, in constant evolution, challenges us to rethink how we interact with information and how machines can facilitate and enhance our daily lives. Mechanical engineering, a cornerstone of the industry, invites us to reflect on sustainability and

optimization. From the comprehensive review of design guidelines and sizing in liquefied petroleum gas systems to the reuse of electric vehicle batteries for a second life in renewable energy systems, solutions that combine efficiency and environmental responsibility are outlined. The proposal for improvement in the structural system of a rigid mountain bike frame and the analysis of the impact of automotive air conditioning on fuel consumption underscore how mechanical engineering converges with ecology and resource optimization. In this interdisciplinary framework, synergies emerge, propelling us towards an innovative and sustainable future. The synaptic connection between additive manufacturing, electrical engineering, computing, and mechanics generates a space of infinite possibilities. This issue of our magazine is a tribute to the symphony of knowledge, where each note represents a significant advancement in our journey towards a brighter tomorrow. As we navigate these pages brimming with knowledge, we invite you to contemplate the transformative power of collaboration between seemingly disparate disciplines. It is at the intersection of these areas where innovation comes to life, where boundaries blur, and solutions take shape. In this ongoing journey towards the future, science and technology become our most powerful allies. May this edition inspire, guide, and awaken innovative curiosity in each of our readers. Let us advance together towards a future full of possibilities. Challenges will always be present, and synergistic work will be the fundamental tool to overcome them.

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Editor in Chief