

Editor's Column

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Everything we hear is an opinion, not a fact.
Everything we see is a perspective, not the truth.

Marcus Aurelius, Meditations

Editorial Letter

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THE first issue of Vol. 30 of the Electronics journal presents five original research papers that highlight the intersection of advanced computational frameworks and specialized hardware design. These contributions address critical needs in medical diagnostics, high-speed communication, and energy-efficient semiconductor technology.

The issue begins with a study by Al-Hasooni et al., who propose a multimodal deep learning framework for the near-instantaneous prediction of cardiovascular events. By simultaneously processing 12-lead ECG waveforms through a specialized SignalCNN and patient demographic data via MetaMLP, the authors achieve a validation accuracy of 85.19%. This hybrid approach demonstrates immediate clinical potential, as the system can deliver diagnostic insights in less than 0.25 seconds, offering a scalable solution for real-time cardiac monitoring.

In the field of biomedical sensing, Mezache et al. introduce a novel multi-band metamaterial resonator designed for the terahertz (THz) regime. Specifically tailored for the detection of SARS-CoV-2, the biosensor utilizes a thin gold layer to achieve a high sensitivity of 347.7 GHz/RIU. The design's ability to differentiate between various virus types through refractive index changes—combined with its non-destructive nature—establishes a robust foundation for next-generation label-free diagnostic platforms.

Shifting focus to semiconductor architecture, Goswami et al. investigate FinFET-based sub-circuit designs for low-power VLSI applications. Their research introduces innovative stacked-based 4:3 and 5:3 compressors for multipliers, which significantly reduce the critical path delay and power con-

sumption. Simulations indicate a 64.91% reduction in delay and an 87.85% improvement in average power, proving that FinFET technology is essential for maintaining performance as device scaling progresses beyond the limits of traditional planar transistors.

The final two papers address advances in antenna engineering. Bin Helal and Touhidul Islam present a compact ultra-wideband (UWB) pi-slotted elliptical patch antenna for THz-band 6G wireless communication. This design, which incorporates a pi-shaped slot for the first time in the THz spectral region, achieves a wide impedance bandwidth of 3.41 THz and a high gain of 7.906 dB. Its ultra-compact footprint makes it an ideal candidate for on-chip 6G systems and high-speed sensing.

Lastly, Md. Samiul Islam and Abu Zafor Md. Touhidul Islam contribute a polyester-based textile antenna specifically for smart clothing. Operating in the 3.5 GHz band, the antenna is optimized for 5G NR and WiMAX applications while maintaining a high radiation efficiency of 94.52%. Extensive bending and SAR analysis confirm that the design is both robust and compliant with IEEE safety standards, making it a practical and safe solution for wearable healthcare and broadband communication.

Finally, we must also note with sadness that we close this issue with an *In Memoriam* letter written by our honorary Editor-in-Chief Prof. Branko Dokić for Prof. Milić Stojić, who passed away at the beginning of the year. His work has left an invaluable mark on our community, and we use this opportunity to honor his legacy and profound contributions to the field.

We hope that the readers find these articles both intellectually stimulating and practically relevant to their ongoing research. As always, I thank the authors for their contributions to this issue of the journal and extend great appreciation to all the reviewers who participated in the editorial process by providing their reports in a timely manner to the editors and authors.