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Beyond Horizons - The Rise of the Edge AI Processing Paradigm

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Welcome to the cutting edge of innovation, where intelligent processing is migrating to every device that interacts with the physical world. The convergence of edge computing, artificial intelligence (AI), and the Internet of Things (IoT) drives a shift in the computing continuum, giving rise to the dynamic and transformative field of edge AI. This book, a curated collection of research work presented at the European Conference on EDGE AI Technologies and Applications (EEAI), serves as both a ledger and a beacon for this exciting new era of edge intelligence-driven technologies.

The EEAI stands as a vital European forum, bringing together interested minds from academia and industry to explore the entire edge AI technology stack. From silicon circuits, AI accelerators, and specialised hardware platforms to the complexities of advanced algorithms and the architecture of next-generation edge AI systems, the conference fosters a vibrant exchange of ideas that propel the field of edge AI forward.

The research presented in these pages captures the spirit of that collaboration, offering a panoramic view of the challenges being addressed and the groundbreaking solutions being developed.

The book is more than a collection of papers, it is a synopsis presenting the real-world impact of edge AI. It moves beyond theoretical discussions to showcase how these technologies are being applied to solve some of the most pressing challenges. The chapters of the book navigate from the complex urban landscapes of last-mile delivery to the fertile fields of smart agriculture, discovering how intelligent systems are creating new efficiencies, enhancing security, and redefining what is possible at the network's edge.

We invite you to immerse yourself in these chapters, not just as a reader but as a participant in the ongoing dialogue that is shaping the future of edge intelligence.

Whether you are a curious and creative researcher, an innovative engineer, or a student eager to understand the next wave of edge AI processing, the insights shared here provide a comprehensive and deep understanding of the technologies and applications that are bringing intelligence to the edge.

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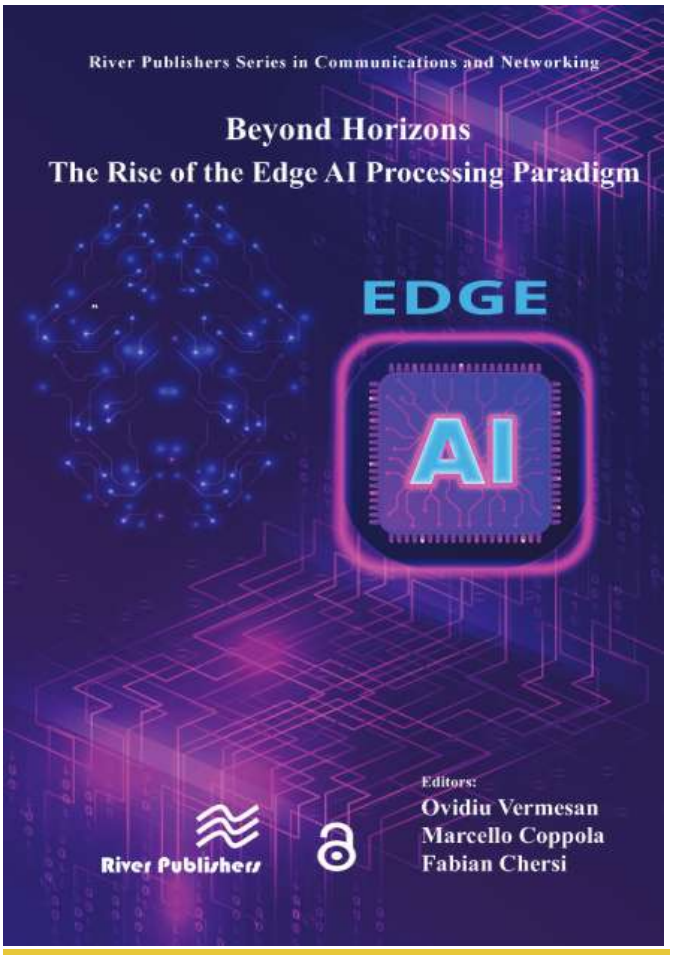

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KEYWORDS:
Edge AI technologies, edge AI technology stack, micro-edge, deep-edge, and meta-edge, neuromorphic computing, artificial intelligence (AI), edge AI accelerators, deep learning (DL), machine learning (ML), federated learning (FL), Internet of Things (IoT), system-on-chip (SoC), autonomous systems, Edge AI trustworthiness, AI explainability (XAI), AI interpretability (IAI).

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