

Wearable Technology

IEEE CASS Seasonal School 2024

Editors:

Levis Chiri Kamau, Dedan Kimathi University of Technology, Kenya

Beth Gichanga, Dedan Kimathi University of Technology, Kenya

Kevin Maina, Technical University of Kenya, Kenya

Mike Muthomi Gikundi, Dedan Kimathi University of Technology,
Kenya

Lewis Murimi Murithi, Dedan Kimathi University of Technology,
Kenya

This book is the result of a groundbreaking milestone CASS seasonal school dedicated to Wearable Technology that was held for the first time in Africa. It is a reference on the evolving terrain of wearable tech and circuit-based technologies in specific fields including data processing and signal analysis, enhancing patient monitoring, and improving quality of life for senior adults. It also covers broad topics such as trends in wearable technology and the art of circuit design.

The seasonal school provided exclusive opportunities for attendees to interact with renowned experts across multiple domains. Participants gained invaluable insights into the forefront of innovation, equipping them with the knowledge and skills necessary to thrive in this rapidly evolving field. The school brought forward real-world examples as well as the latest global advancements in wearable technology. Facilitating direct engagement with leading experts in the field and fostering networking opportunities, the school served as a center for knowledge exchange and professional growth.

TABLE OF CONTENTS

1. Preface.
2. Acknowledgments:
 - 2.1 Organizing Team
 - 2.2 Speakers
3. Introduction
 - 3.1 Significance of the Seasonal School
4. Session article:
 - 4.1 Wearable Solutions for Improving Quality of Life (QoL) of Senior Adults
by: Fakhrul Zaman Rokhani, PhD, PEng, PTech
 - 4.2 Trends in Wearable Technology
by: Eng. Dr. Shadrack Mambo, PhD, D??Tech, PE, MIEK, SMIEEE
 - 4.3 Data processing and signal analysis for wearable Devices
by: Prof. Ciira Maina
 - 4.4 Embracing the Future: The Art of Circuit Design in Wearable Tech
by: Collins Emasi
 - 4.5 Revolutionizing Orthopedic Care: Harnessing Wearable Technology for Enhanced Patient Monitoring and Rehabilitation
by: Antony Gitau
 - 4.6 Human-machine interfaces and interactive design.
by: Paul Kamau
 - 4.7 EMBEDDED AI AND EDGE ML IN WEARABLES
by: Jared Nganyi
 - 4.8 WEARABLE TECHNOLOGY GAME DESIGN & DEVELOPMENT
by: Dorothy Orina
 - 4.9 Wearable Innovation: Redefining Personal Technology for a Connected Future
by: Alex Watila
 - 4.10 Bringing Generative AI on Wearables
by: Joseph Maina
 - 4.11 BLUETOOTH LOW ENERGY(BLE) AND ZIGBEE FOR WEARABLES
by: Allan K. Koech HSC
 - 6.12 WIRELESS COMMUNICATION PROTOCOL FOR WEARABLES
by: Newton Kelvin
 - 4.13 Power Management
by: Fidel Makatia HSC
 - 4.14 Security and ethics in wearable Technology
by: Felix Kinaro
 - 4.15 Advancing Animal Welfare With Wearables
by: Joseph Musya
 - 4.16 Unlocking Creativity and Problem-Solving: Understanding Design Thinking and Its Processes
by: Peter Kagwe
5. Student Projects
9. Editorial team
10. Appendix

WEARABLE TECHNOLOGY IEEE CASS SEASONAL SCHOOL 2024

Editors

Levis Chiri Kamau

Beth Gichanga

Kevin Maina

Mike Muthomi Gikundi

Lewis Murimi Murithi



River Publishers Series in Electronic Materials, Circuits and Devices

e-ISBN: 9788743801788

Price:

[Distributed exclusively by Routledge](#)

KEYWORDS:

Wearable Devices, Wearable Technology, Senior Healthcare, Precision Aging, IoT in Healthcare, Fall Detection, Cognitive Assessment, Edge Computing, AI Integration, Signal Processing, Data Acquisition, ECG Analysis, Gait Analysis, Machine Learning, Circuit Design, Miniaturization, Wireless Communication, Energy Efficiency, Orthopedic Care, Patient Monitoring, Rehabilitation, Telemedicine, Human-Machine Interface, Human-Computer Interaction, UI/UX Design, PCB Design, Reflow Soldering, Interactive Design, Embedded AI, Edge ML, Model Development, Training AI Models, Deployment, Cybersecurity, BLE Vulnerabilities, Encryption, User-Device Interaction, Privacy Measures, Bluetooth Low Energy (BLE), Near Field Communication (NFC), Narrowband IoT (NB-IoT), Low-Power Wide-Area Networks (LPWAN), Security, Animal Welfare, Geofencing, Empathy, Innovation, Problem-Solving



www.riverpublishers.com
marketing@riverpublishers.com