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Literature summary of papers

Wearable sensors such as the apple watch. Oura Ring, and OPPO Ohealth H1 provide continuous monitoring of physiological parameters (e.g., heart rate, temperature, blood glucose). These devices collect vital data for analyzing health conditions and offering insight into fitness and wellness. The integration of such sensors with artificial intelligence has revolutionized personalized medicine healthcare

#### **1. Introduction**

Biomedical Artificial Intelligence (AI) systems that integrate data from wearable devices have emerged as powerful tools for real-time health monitoring, diagnostics, and personalized healthcare. These AI systems can provide individualized health insights and support medical professionals in devising personalized treatment plans. With the proliferation of wearable sensors such as the Apple Watch, Oura Ring, Omnipods, and devices like the OPPO OHealth H1, this field has seen rapid technological advancement.

#### **2. Wearable Health Monitoring Sensors**

Wearable sensors are fundamental to the biomedical AI system, providing continuous and real-time data collection. These devices are equipped with sensors that measure physiological parameters such as heart rate, blood oxygen levels, glucose levels, and sleep patterns. This data forms the basis for AI-driven health analysis.

Summary of papers

Article 1

Google Health aims to enhance global health by developing tools and technologies that connect health information and empower individuals and care teams. Their focus includes utilizing AI to improve diagnostics, streamline health research, and provide accessible health resources. This platform is particularly beneficial for data collection as it aggregates health insights from various sources, facilitating better decision-making and personalized care. The site outlines their mission to improve healthcare through technology and research, highlighting their efforts in areas such as AI in medicine, health equity, and mobile health solutions. It provides insights into various health initiatives and products aimed at enhancing health management for individuals and healthcare professionals alike. For further details, visit the link directly.

Article 2

The Pixel Watch 3 introduces a groundbreaking "Loss of Pulse Detection" feature that automatically detects when the wearer’s pulse stops, signaling a medical emergency. Using AI and advanced sensors, the watch confirms pulselessness, checks for user responsiveness, and, if no response is given, alerts emergency services with the user's location. This feature is opt-in and designed to provide life-saving assistance, especially for people who are alone during such critical moments. It will roll out in selected European countries starting in September 2024.

Article 3

Google's AI model, HeAR (Health Acoustic Representations), is designed to detect diseases by analyzing sounds like coughs. The AI is trained on millions of anonymized cough samples and can help diagnose respiratory conditions such as tuberculosis (TB) and chronic obstructive pulmonary disease (COPD). Researchers and companies, like Salcit Technologies, are using HeAR to develop early detection tools for health conditions, providing scalable health solutions for low-resource areas. The model reduces the amount of data needed to create disease-specific detection systems.

#### **3. Conclusion**

The convergence of biomedical AI and wearable health technologies is paving the way for personalized health solutions, enhancing disease detection, and improving patient outcomes. Ongoing research and innovation in this field are essential to address the challenges and maximize the benefits of these technologies.

References

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