

Health Monitoring with Machine Learning and Wireless Sensors

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Driven by advances in medicine and increased lifespans, societies are now aging at an alarming rate. This fact presents a host of new challenges - many seniors live alone and are subject to falls, accidental injuries, chronic disease exacerbations, and depression. The situation places an alarming burden on our health care system and society more generally, a burden that is only expected to grow over time.

This talk will introduce Emerald, a new technology that uses machine learning for health monitoring in the home. Emerald automates health monitoring through innovations in wireless sensing and machine learning. The Emerald device is a Wi-Fi like box that transmits low power radio signals, and analyzes their reflections using neural networks. It infers the movements, breathing, heart rate, falls, sleep apnea, and sleep stages, of people in the home -- all without requiring them to wear any sensors or wearables. By monitoring a variety of physiological signals continuously and without imposing a burden on users, Emerald can automatically detect degradation in health, enabling early intervention and care. The talk will describe the underlying technology, and present results demonstrating Emerald's promise in a geriatric population.