Machine Learning And Attention For Intelligent Sensing

Tech ID: 33759 / UC Case 2023-724-0

BRIEF DESCRIPTION

A revolutionary approach to sensor data processing that leverages bio-inspired computing for intelligent sensing.

FULL DESCRIPTION

Researchers at UCI have developed a technology introducing a novel framework for intelligent sensing in IoT systems, utilizing Hyperdimensional Computing (HDC) to process sensor data in a robust and lightweight manner. By directly operating on raw analog sensor data, the framework provides real-time feedback for selective sampling and attention mechanisms, significantly reducing data generation rates and enhancing learning quality.

SUGGESTED USES

» Infrastructure monitoring and management with efficient data processing.

» Mobile devices with enhanced battery life and processing capabilities.

» Autonomous systems and robotic systems with advanced sensory perception.

» Environmental and security monitoring with selective and intelligent data capture.

ADVANTAGES

» Four orders-of-magnitude data reduction in sensing systems.

» Real-time feedback for selective data generation and enhanced learning.

» Robust and lightweight processing through Hyperdimensional Computing.

» Integration of neural encoding with neural-symbolic reasoning architecture.

» Hardware acceleration for fast and real-time sensor control.

» Substantial efficiency, robustness, learnability, and reasoning improvements over current models.

PATENT STATUS

Patent Pending

RELATED MATERIALS

» Patent Application: Machine learning and attention for intelligent sensing

CONTACT

Ben Chu
ben.chu@uci.edu
tel: .

OTHER INFORMATION

CATEGORIZED AS

» **Computer**
  » Software
» **Imaging**
  » Remote Sensing
  » Software
» **Sensors & Instrumentation**
  » Environmental Sensors

RELATED CASES

2023-724-0