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(54) Title of the invention : AN ADAPTIVE AI MODEL OPTIMIZER FOR ENERGY-CONSTRAINED EDGE DEVICES

(57) Abstract :

An adaptive AI model optimizer (100) for energy-constrained edge devices is disclosed, comprising an energy monitoring module (102), a real-time model modifier (104), an inference engine (106), a resource forecasting unit (108), and a communication interface (110). The system dynamically adjusts AI model complexity based on real-time resource status and forecasts, ensuring optimal performance while conserving energy. It enables seamless, intelligent adaptation without interrupting device operations, significantly extending the device's operational lifespan under varying energy conditions.

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