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(57) Abstract :

The invention provides a hybrid artificial intelligence system for real time analytics of IoT data across edge cloud environments by combining lightweight edge models, mid-tier fog analytics and high precision cloud based deep learning. The system includes dynamic task orchestration, cross layer feature fusion and continuous model update mechanisms that ensure low latency processing, improved accuracy and adaptive performance under varying network and device conditions. The architecture enables immediate anomaly detection at the edge, contextual inference at fog nodes and comprehensive pattern analysis in the cloud, allowing organizations to derive fast, reliable and scalable insights from large volumes of distributed IoT data.

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