

Al on CPUs – A PoC for Healthcare Medical Solution Overview

Built on readily available DellTM PowerEdge hardware, this PoC showcases an AI-powered solution for healthcare environments deployed on CPUs. The solution uses an AI image classification model to detect pneumonia in X-ray images, demonstrating how AI can be leveraged to assist medical professionals and lead to better patient outcomes. The PoC integrates into standard medical environments and can be further extended with support for other medical imaging modalities or detection of additional conditions.



No Specialized Hardware

The AI-powered pneumonia detection solution was deployed with readily available hardware from Dell. The solution utilized Dell PowerEdge servers with 4th Generation AMDTM EPYC CPUs and BroadcomTM Ethernet. No specialized hardware or GPUs were required.

4x Throughput Improvement

By leveraging AMD's ZenDNN optimization library with node pinning, the PoC solution demonstrated a 4x throughput improvement compared to a standard deployment, processing 1,390 X-ray images per second.

Secure On-premises Deployment

The PoC meets the strict data privacy and regulatory requirements of healthcare environments by maintaining an on-premises deployment with secure Dell PowerEdge servers.

Accurate Al Image Detection

Highly accurate pneumonia detection was achieved using transfer learning to customize a ResNet50 base model. Training on a CPU took 9 hours and resulted in 99% training accuracy and 85% validation accuracy





This document, including any supporting materials, is owned by The Futurum Group. This publication may not be reproduced, distributed, or shared in any form without the prior written permission of The Futurum Group.

The Futurum Group is an independent research, analysis, and advisory firm, focused on digital innovation and market-disrupting technologies and trends. Every day our analysts, researchers, and advisors help business leaders from around the world anticipate tectonic shifts in their industries and leverage disruptive innovation to either gain or maintain a competitive advantage in their markets.

Dell is a leading technology company known for its innovative computing solutions, including personal computers, servers, and storage devices. Founded in 1984 by Michael Dell, it's recognized for quality, customization, and customer service. Additionally, Dell emphasizes sustainability in its product lifecycle to minimize environmental impact.

The Futurum Group LLC | futurumgroup.com | (833) 722-5337 | © 2024 The Futurum Group. All rights reserved.