Mark III Systems

Mark III Systems

Bringing Artificial Intelligence to mainstream manufacturing

The Artificial Intelligence (AI) revolution is here, and it has the power to transform everything from daily life to the production line. With support from the Lenovo AI Innovation Center and access to ThinkSystem servers, Mark III Systems is leading the way, helping its clients to harness the power of AI to improve manufacturing quality and efficiency.

Lenovo™

intel XEON inside™

Think AI means robot butlers and digital assistants that order your coffee while you're driving to work? Think again. Yes, AI is already a visible part of our daily lives. However, smart businesses are developing strategies to incorporate AI technology in everything they do to augment the human intelligence they already have. Manufacturing is one of the fields where AI is being applied to improve product quality and gain greater efficiency.

Ryan VanAlstine, Co-Founder & CTO of digital development company BlueChasm, a subsidiary of Mark III Systems, begins: "AI means using machines to 'see' and 'hear' things that they typically couldn't in the past. For example, using cameras that can identify objects to determine your location, or voice recognition software that can identify accent and tone to translate speech.

"Every organization needs to be able to see and hear what they're doing, whether that involves monitoring a patient's vital signs or inspecting products as they come off an assembly line. But it's not always practical or economically viable for a human being to do that."

Andy Lin, Vice President of Strategy at Mark III Systems adds: "AI and machine learning represent a fundamental shift in how data is interpreted. The more data you feed AI models, the more intelligent they become."

With a strong focus on building and running open digital and cognitive platforms, the Mark III Systems team works closely with clients to integrate AI into their businesses.

“Getting started with AI can be a very daunting task,” says Andy Lin. “Most organizations don’t have the skills or the infrastructure to design, build and train AI models, let alone deploy and utilize them. By teaming up with Lenovo, we gained access to the infrastructure and the expertise we need to support our clients’ AI projects.”

As a Lenovo Partner, Mark III Systems has access to the Lenovo Artificial Intelligence Innovation Center and all the high-performance computing resources it could wish for – including the latest Lenovo ThinkSystem SD530 servers which, equipped with Intel® Xeon® Scalable processors, deliver the performance needed for compute-intensive AI projects.

Andy Lin comments: “Lenovo has really complemented our capabilities in AI. With easy access to world-class hardware and support services via the Lenovo AI Innovation Center, we can focus on building and training new models, and solving our clients’ use cases.”

Lenovo has Innovation Centers in Morrisville, North Carolina, Stuttgart, Germany and Beijing, China. Customers can utilize Lenovo clusters to develop their AI proofs of concept by trying multiple different systems, frameworks and libraries. They can also experience LiCO, Lenovo’s AI management platform that delivers unprecedented control over AI resources with an easy-to-use GUI for those who aren’t full-time data scientists. The AI Innovation Centers are free to use for customers who need help in taking the first step in the AI journey.

Recently, Mark III Systems used Lenovo resources to build a demo that simulates AI in a manufacturing environment. The demo uses a camera attached to a Lenovo Tiny desktop to 'watch' beverage cans coming off a conveyor belt and determine whether or not there are any cosmetic or structural blemishes.

Ryan VanAlstine explains: "We had to train the AI model so it knows what the can is supposed to look like from every angle. We compiled many hundreds of images, uploaded them onto our Lenovo ThinkSystem SD530 server, and used several open source frameworks to train the model so that it recognizes what a valid can looks like. When we first started building our Vision AI model, it took over 10 hours. On the Lenovo server, we were doing it in under 9 minutes.

"From there, we deployed the trained model onto an inference device, which takes one frame per second from the camera that's streaming in the manufacturing environment, analyzes it locally, and determines whether or not the can is valid. You can then use that information to make decisions on whether to pull the can from the production line depending on the level of damage. If the model notices that there are multiple blemishes in the same run, it may be that there's something wrong with the manufacturing part. Not only does this increase product quality and responsiveness, it also reduces unnecessary labor, eliminating the need for someone to sit and watch the cans – which is expensive, but also a tedious and error-prone task – AI makes the whole process more efficient."

Supported by Lenovo, Mark III Systems is looking forward to developing more innovative AI models to solve more of its clients' business challenges.

Andy Lin concludes: "Our partnership with Lenovo has given us access to state-of-the-art tools and resources that we wouldn't otherwise have had. On top of that, we benefit from the advice, guidance and expertise of the Lenovo AI team. As more and more organizations become interested in introducing AI, we have everything we need to make that a reality."

> "With easy access to world-class hardware and support services via the Lenovo AI Innovation Center, we can focus on building and training new models, and solving our clients' use cases."
>
> – Andy Lin, Vice President of Strategy, Mark III Systems

Lenovo

CS00050-00

Mark III Systems

Bringing Artificial Intelligence to mainstream manufacturing

Solution components

Hardware

Lenovo ThinkSystem SD530 with Intel® Xeon® Scalable processors

Software

CouchDB
Docker
JavaScript
Python
TensorFlow
Ubuntu Linux

Services

Lenovo AI Innovation Center Services

"With easy access to world-class hardware and support services via the Lenovo AI Innovation Center, we can focus on building and training new models, and solving our clients' use cases."
—Andy Lin, Vice President of Strategy, Mark III Systems

Mark III Systems partnered with Lenovo to give its developers access to the powerful compute resources at the Lenovo Artificial Intelligence Innovation Center. Today, the Mark III Systems team has everything it needs to design, build and train exciting new AI models to solve its clients' business challenges.