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A compendium of technical articles from *Machine Design*

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**AUTOMATE 2024  
SNAPSHOT:**  
**Robotics,  
Automation,  
AI and More**





**FOR PRAGMATISTS**, the best use cases are the ones that solve ground-level challenges. For visionaries, innovation that leads to big picture gains and future growth provides zeal. If these statements hold true, both personality types would have found inspiration and value at Automate 2024.



*Rehana Begg,  
Editor-in-Chief  
Machine Design*

Hosted by the [Association for Advancing Automation \(A3\)](#), the annual automation, robotics and AI solutions event convened 867 exhibitors and 42,895 registrants at Chicago's McCormick Place from May 6-9, 2024. Attendance was up 13% over the previous year, according to A3. The plan is to host the show in Detroit next year; mark your calendar for May 12-15, 2025.

Here, we've rounded up the articles that ran that week and added a few post-event reports that best captured the vibe of Automate 2024. We'd love to hear your reaction. Email me at [rbegg@endeavorb2b.com](mailto:rbegg@endeavorb2b.com).

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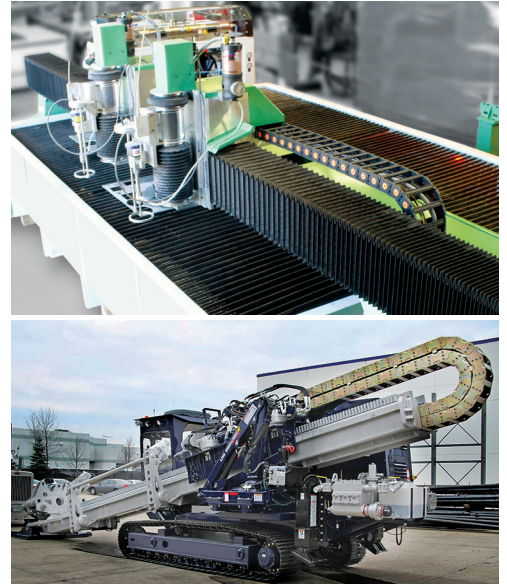
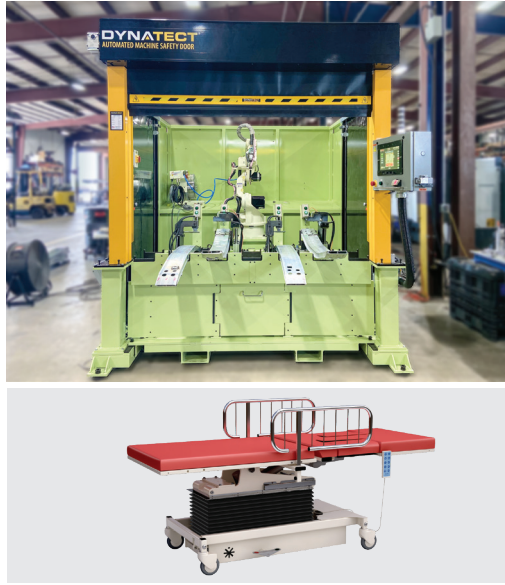
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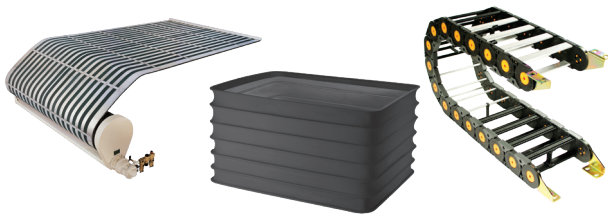
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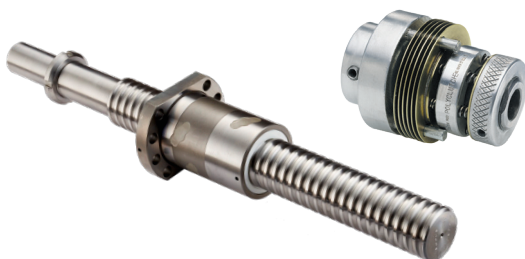
### MOLDED COMPONENTS

Custom Rubber & Urethane



### PRECISION MOTION CONTROL

Ball Screws & Slip Clutches



### ROLL-UP DOORS

for Vehicles & Automation Safety





Courtesy: Siemens

## AUTOMATE 2024 WRAP-UP

### CHAPTER 1:

# Shifting the Robotics Paradigm to Flexible, Agnostic Solutions

REHANA BEGG, Editor-in-Chief, *Machine Design*

**Functional success of robotic and control solutions is tied to available information, flexibility and software upgrades. Heads-up: AI is integral to the mix.**

To the uninitiated, the number of AI use cases on display at Automate 2024 might signal a bonanza is currently underway. This year's trade show floor and conference agenda had use cases aplenty.

Compelling generative AI tools (the kind of AI that can create something new based on training data) were presented by vendors such as Nvidia—to extend capabilities in shop floor predictive monitoring, visual object inspection, work cell design validation and 3D perception for mobile robots—and Apera AI—to showcase AI for vision-guided robotic applications in the automotive industry.

The growing relevance of generative AI was borne out in a [recent Deloitte survey](#), which reported that a majority (79%) of respondents expected Gen AI to drive substantial organizational transformation in less than three years. The survey also noted a strong focus on tactical benefits such as improving efficiency and cost reduction, as opposed to growth and improving innovation.

At Automate, a profusion of vendors lent credence to these data points by showing in manifest ways how the surge in smart factory technologies over the years has driven companies to use information more efficiently. An observable trend is the market interest in integrated robot control, which has generated a runway for different market players—machine builders, integrators, robot manufacturers and automation system suppliers—to get in on the benefits.

**[READ MORE: A Booth Visit with Yaskawa at Automate 2024: \[Two Vision System Applications\]](#)**

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# Automate with a Competitive Edge



**QM22 MINIATURE  
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**QM35 LOW  
PROFILE DESIGN**  
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Although the smart automation landscape is changing quickly, much remains to be developed before the industry can provide the assurance of technology that is both predictable and stable. To be sure, not all use cases are created equal, and we cannot hold it against the discerning engineer's eye-rolling response (no matter how impolite it seems) to the prospecting borderline examples.

Rest assured, however, by the time Automate 2025 comes around (May 12-15, 2025 in Detroit), there'll be more innovations and new opportunities to roll with.

### First Generative AI Product for Engineering

Count Siemens among vendors that are significantly further along their digital enterprise journeys than others. During a keynote session, the company touted its generative AI-powered assistant. This product, known as the Siemens Industrial Copilot, was first rolled out earlier this year at Hannover Messe 2024 and Siemens is now introducing it to its global markets.

Connected to the plant via the [Totally Integrated Automation](#) (TIA) Portal, the copilot enables teams to find a given topic and to generate a basic visualization and code faster for programmable logic controllers (PLCs). The copilot functions to reduce workloads, take on repetitive tasks and reduce errors when engineering complex tasks. The overall benefit is a boost in quality and productivity over the long term, noted Siemens. The Siemens Industrial Copilot for TIA Portal Engineering will be available for download in July 2024.



Siemens Industrial Copilot is the first generative artificial intelligence assistant for engineering in an industrial environment. Connected to the Totally Integrated Automation (TIA) Portal, the copilot enables users to find the right help topic and to generate a basic visualization and code faster for programmable logic controllers (PLC). Siemens



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- Vacuum components

### Bringing IT Workflows to OT Environments

Siemens also introduced its on-premises OT device, Siemens Simatic Automation Workstation, which was designed in response to the ubiquitous challenge of managing multiple hardware control points across the factory. Siemens noted that devices like PLCs require extensive programming to maintain currency and security. Thus, Siemens' industrial edge solution replaces a hardware PLC, a conventional HMI (human machine interface) and an edge device with a single, software-based workstation that can be managed from a central point.

"Centralized management is the best option for increasing visibility and security for manufacturers managing a high number of automation control points," said Del Costy, president and managing director of Siemens Digital Industries, U.S. "This makes automation highly scalable and changes the game for how factories can be managed."

### Collaboration Brings Reliability to Pick and Place Logistics

An exclusive booth tour with Ujjwal Kumar, group president, Teradyne Robotics (parent company to UR and MiR) provided *Machine Design* with insights into the company's recent collaboration with Nvidia in designing an inspection solution capable of achieving path planning 50-80× faster than current solutions. "With AI we are trying to [marshal] an autonomous way to do inspection with a lot more variability and in an unstructured environment," Kumar said. "This is a great marriage of UR's core hardware with our PolyScope X operating system, combined with Nvidia's hardware and the AI software. It solves a very

During a keynote, Del Costy, president and managing director of Siemens Digital Industries, provided reference examples of robotic integration and automated motion control that can be supported by SIMATIC PLCs with unified HMI panels and integrated safety — all programmed in the Siemens Totally Integrated Automation (TIA) portal. Siemens





important problem for the industrial world around autonomous inspection.”

A partnership between Siemens, Universal Robots and Zivid is another example reinforcing the shift whereby companies demonstrate at tradeshow how they collaborate with solution partners. These partnerships enable companies of all sizes to offer sustainable solutions while allowing them to scale.

**[READ MORE: A3 to Celebrate 50 Years at Automate 2024 in Chicago](#)**

In this case, the three partners harnessed three separate solutions to streamline warehouse automation and solve intra-logistics fulfillment tasks. The three solutions are:

- Siemens’ Simatic Robot Pick AI, a pre-trained, deep learning-based vision software, developed for autonomous piece-picking robot applications, particularly in warehousing and e-commerce situations.
- Universal Robots’ UR20 cobot, with 68.9in. reach and 44-lb payload, enables automa-



A new solution combining UR’s cobot arms with Siemens’ SIMATIC Robot Pick AI software and Zivid’s 3D sensors create a deep-learning picking solution for warehouse automation and intra-logistics fulfillment. Universal Robots



tion of applications requiring the lifting of heavy objects over longer distances, while maintaining UR safety standards; and

- Zivid's 2+ M130 camera, the first 3D sensor capable of imaging everything, including transparent and translucent items, expanding the accessibility and pick ability for e-commerce and fulfillment applications.

UR, which shared a booth with Mobile Industrial Robots (MiR), also featured a joint offering of a mobile cobot (from Enabled Robotics) that could perform different tasks at different stations around the booth. Essentially, a UR cobot was mounted on the MiR250 AMR and affixed to the mobile cobot.

### Seventh-Axis Robots Allow Technology Agnostic, Open Architecture

Best known for its pneumatic and electrical automation technology, Festo demonstrated its agnostic capability by integrating cobots from different manufacturers in a 7th axis application.

The demo was targeted at integrators and machine builders, said Alejandro López, electric automation product manager, Festo.

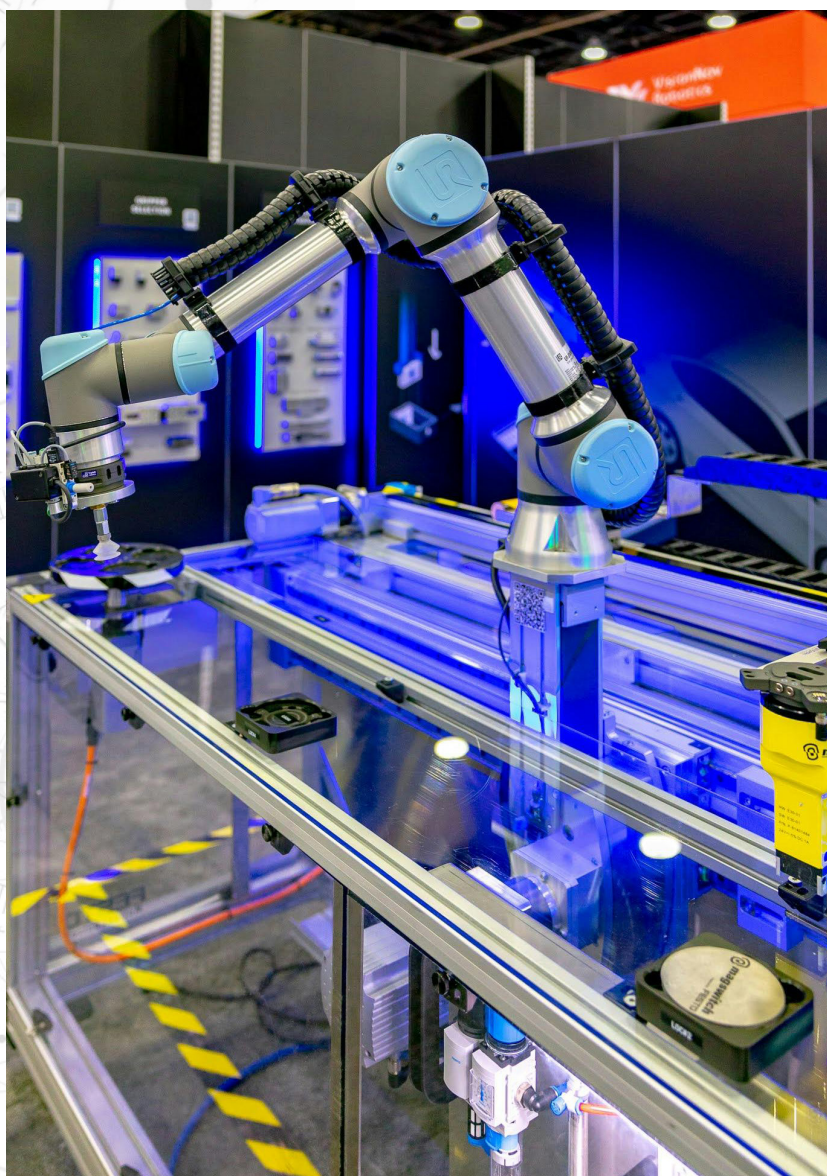
Seventh-axis robots refer to robots on an electromechanical linear actuator that can move horizontally and vertically. The addition of a linear rail extends the reach of a six-axis robot.

The productivity and cost advantages of moving the robot closer to the payload are appreciable. López explained that the use of smaller six-axis robots amounts to lower acquisition costs and a more compact footprint.

The demo also showcased a multi-axis system, the Festo Motion Control Package (FMCP), which is a complete motion control panel for up to four axes motion. It comes with panel control turntables, automatic storage systems, conveyors and transfer tables.

López was able to control the end-effector or gripper with a tablet. The VPPI actuated valve was controlled via analog signal and allowed López to adjust the pressure needed to handle delicate parts. The FDA-approved gripper can handle eggs and other food items, he said, as well as glass (including lightbulbs).

**Festo integrates cobots from different manufacturers in a 7th-axis application. Seventh-axis robots refer to robots on an electromechanical linear actuator moving horizontally, vertically or both.** Festo





### Advancing Cobot Capabilities Through AI-Driven Software

At the Doosan Robotics booth, attendees were likely entertained by a crowd-pleasing cobot drumming session or the “Mixmaster Moodie” demo. Either way, the company successfully signaled the potential leap AI applications can take.

“Mixmaster Moodie” is a bartending cobot powered by Microsoft’s OpenAI. A Doosan cobot fitted with a soft robotic end-effector employs a pioneering cocktail recommendation system to serve a libation based on visual and audio cues.

Theatrics aside, South Korea-based Doosan Robotics proved its worth as a leading cobot manufacturer, with the company’s share price soaring following its initial public filing in October 2023.

#### [READ MORE: Automate 2024 Opens to Enthusiastic Crowd](#)

At the booth, attendees would have been introduced to Dart-Suite, an advanced platform that enhances cobot capabilities by integrating AI and making advanced technology available to an ecosystem. Alex Lee, president, Doosan Robotics Americas, characterized the platform as intuitive and easy to use. It operates like a smartphone, Lee said, and users simply download apps to unleash different functions within the platform. “It allows you to download third-party software into your control scheme with no programming whatsoever and you have the application up and running in minutes,” Lee said.

For instance, one can download a palletizing application to a plug and play controller. “You won’t need skilled individuals, that’s what the cobot allows you to do,” Lee said.



Doosan also unveiled its P3020 cobot at the show. The cobot has a payload of 60 lb and can palletize up to two meters high without a lift. Doosan Robotics

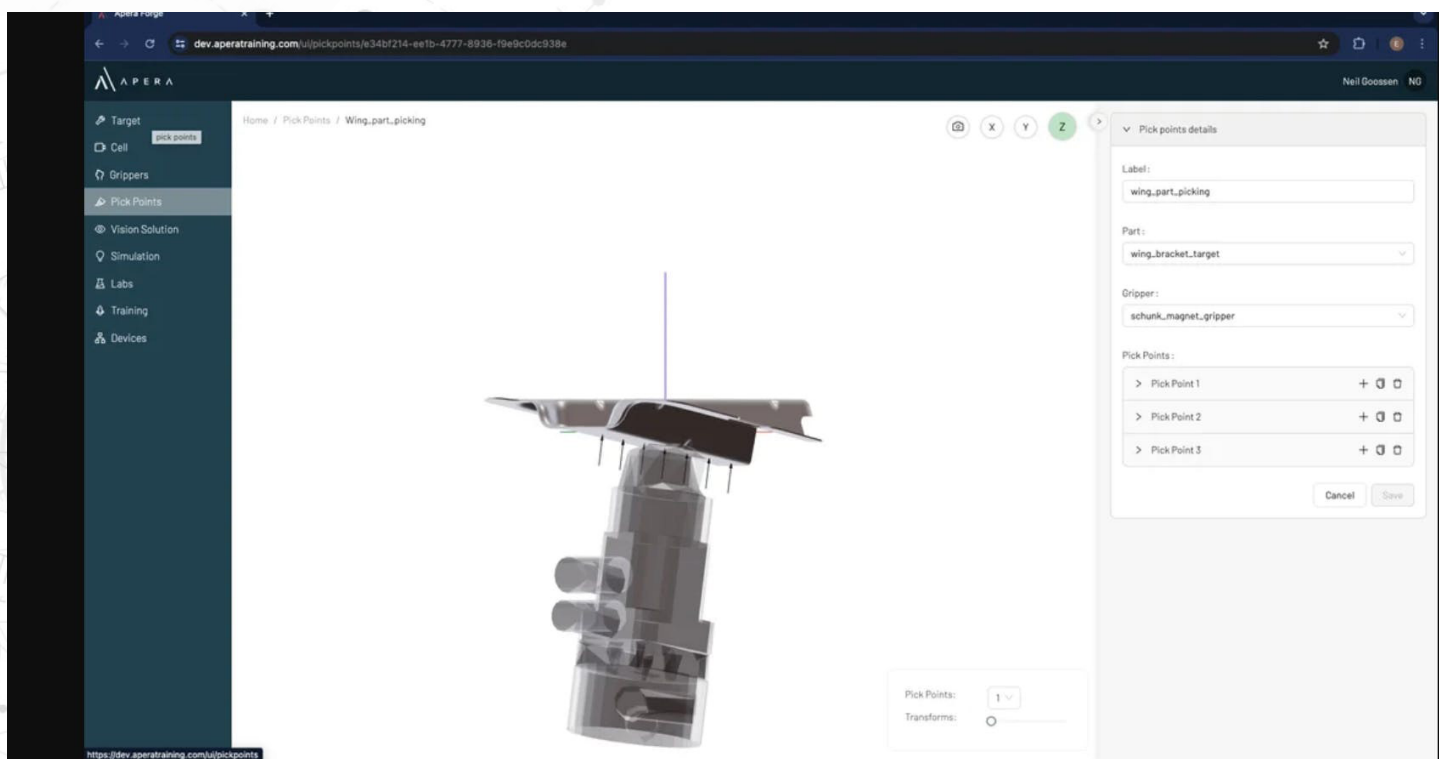
“That’s where the evolution is taking us.”

Doosan also unveiled its P3020 cobot at the show. The cobot has a payload of 60 lbs and can palletize up to two meters high without a lift. The rationale behind the development of the P-series cobot, Lee said, stems from the fact that many packaging companies using palletizing solutions found a limitation when it came to weight and reach. Designed to bridge the gap, the P3020 is a 30 kg cobot with a 2,030-millimeter reach. “It is the heaviest payload with the longest reach cobot in the market,” Lee said. “Not only that, but it is also the fastest robot in the market within the collaborative space. The cobot is capable of rotating at 360 deg. in one second.”

#### 4D Vision Solutions and CAD-Powered AI Training

Apera AI is known for using 4D Vision as its underlying technology. The company characterizes the 4D process as follows: A scene is captured by 2D cameras before the images are run through proprietary AI technology. These images are integrated into a 3D rendering of the scene, where single objects are identified as pickable. Next, the robot chooses the most viable part. Path planning instructions are specified via Apera Vue software in the robot’s controller.

Whereas conventional machine learning algorithms rely on CAD models for training, Apera AI uses synthetic data to train neural networks using CAD drawings or 3D scans. The cycle time is very fast—as little as 0.3 seconds (3 Hz). The object is picked and placed with precision. The automation solution is applicable in bin picking, sorting, packaging and assembly.



Apera AI unveiled Forge Lab at Automate 2024. The CAD-powered AI training and simulation solution handles the vision programming by simulating the robotic cell. Apera




The company is further transforming robotic guidance. At Automate, Apera AI unveiled two offerings: Forge Lab and Foresight.

Forge Lab, a CAD-powered AI training and simulation solution, handles the vision programming by simulating the robotic cell. Since this is a web-based solution, users don't need a physical camera setup or robot to use the product. System integrators or in-house staff can use the app to complete proofs of concept in a matter of in hours. The process includes building out the cell by specifying the cameras, robot models, gripping strategies and pick points. The user can then test and refine the cell setup in a virtual environment. Next, the user uploads a CAD model of the part to the Forge engine for training. The program uses simulated data to refine the code that is to be deployed to the customer's Apera Vue vision software in the plant environment via the cloud.

The second offering, Foresight, is part of Apera AI's Vue robotic vision software and updates image processing by enabling the robot to come back to the working area already equipped with instructions on how to pick the next part. According to Apera AI's press note, Foresight processes 2D images "in a new way" through [Vue's AI engine](#) to create 3D object identification and path planning for industrial robots and cobots.

The time needed to locate, pick, move and drop a part is known as cycle time. The efficiencies gained from refining this motion, both at the point of the camera and the robot, are key to steps in engineering an optimized robotic sequence. Based on Apera AI's testing, Foresight can help decrease total robot cycle time by as much as 30%.

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Courtesy: ABB

## AUTOMATE 2024 WRAP-UP

### CHAPTER 2:

# Day 1 at Automate 2024: Announcements, Embargoes Lifted, Rollouts and More

REHANA BEGG, Editor-in-Chief, *Machine Design*

Add these pitstops to your  
trade show itinerary at  
Automate 2024 to learn  
about new levels of robotics  
flexibility, choice and  
performance.

**A**utomate, the largest automation and robotics trade show in North America, kicked off today (May 6) at McCormick Place in Chicago.

More than 750 exhibitors are expected to showcase automation solutions and technologies straddling robotics, vision, motion control and AI from around the globe. A paid Automate Conference will feature more than 100 talks from industry experts.

[Automate](#) is organized by A3, the Association for Advancing Automation, which promotes automation technologies and represents more than 1,200 automation manufacturers, component suppliers, system integrators, end-users, academic institutions, research groups and consulting firms that drive automation forward worldwide.

Planned for Monday, the following news and accolades represent a mere sampling of Machine Design's rounds on the trade show floor:

### Inaugural Automate Innovation Awards

The Association for Advancing Automation (A3) is rolling out the inaugural Automate Innovation Awards at a special ceremony on May 6.

This year's award winners—AMD, ECM and GrayMatter Robotics—will be recognized for their original automation products and solutions.

A3 noted that the winners brought their industrial automation technologies to market over the past year, and demonstrated clear and measurable impact through increased

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efficiencies, reduced costs, improved quality and safety.

A special ceremony planned for May 6 at 4 p.m. at the Automate Show Theater (Booth #3641), will recognize the winning entries in three categories as follows:

**Hardware:** The [AMD Embedded+ Architecture](#) combine the AMD x86 processor with integrated graphics and programmable hardware for critical artificial intelligence (AI) inferencing and sensor fusion applications. According to A3, this architecture simplifies and accelerates design to enable original design manufacturers (ODM) to deliver optimized hardware platforms off-the-shelf and speed up time to market.


**Software:** [PrintStator](#)

is an advanced electric motor computer-aided design platform developed by Boston-based startup ECM to enable the design, optimization and manufacture of electric motors across multiple use cases while also factoring in global technology and regulatory trends.

Motors designed using PrintStator incorporate ECM's PCB Stator technology. They are 70% lighter than conventional options, use 80% less raw materials to produce, are up to 30 dB quieter and can achieve efficiencies of 90%.

**Systems:** [SCAN&GRIND](#) from GrayMatter Robotics is a comprehensive solution to the






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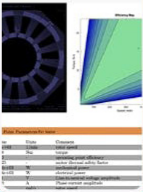
## ECM's advanced Motor CAD platform

Advanced design-to-manufacture  
software for **next generation** motors

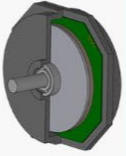
**STAGE 1**  
PrintStator  
Modelling




**STAGE 2**  
Datasheet  
Review &  
Refinement




**STAGE 3**  
Parametric  
CAD Model  
Generation



**STAGE 4**  
Refined CAD  
Model with  
Integration  
and System  
Requirements



**STAGE 5**  
Manufacturing,  
Assembly and  
Testing of Final  
Prototype



ECM

challenges of manual grinding operations, providing efficiency, consistency and adaptability in high-mix manufacturing environments. Traditionally, robots have been limited to mass-production grinding due to the economic impracticality of manual programming. The system's advanced features, including automated programming of the robot based on scanned data, customizable process parameters and automatic target recognition, make it feasible to leverage robotic technology in a wider range of mass- and specialized-production applications.

### Official Launch of Modular Large Robot Portfolio

This year, ABB (Booth #2239) celebrates 50 years of robotic innovation. A determination to keep up with market demands was evident in a recent investment in AI through a recent acquisition of AI-enabled 3D vision navigation specialist Sevensense.

Highlights at this year's booth are:

- An expanding modular large robot portfolio with the introduction of the new IRB 7710 and IRB 7720. ABB stated in its press note that the new robots, combined with the recently launched IRB 5710-IRB 5720 and IRB 6710-IRB 6740, offer a combined total of 46 different variants capable of handling payloads between 70-620 kg (about 154-1366 lb).
- Two AMRs, including ABB's first AI-powered AMR with Visual SLAM navigation technology, which offer an unprecedented combination of speed, accuracy and payload.
- An area with four GoFa collaborative robots displaying their ability to handle a diverse range of applications; an AI-enabled robotic item picking cell; a digital corner with ABB's latest software innovations; and a FlexPicker delta picking robot with B&R



The IRB 7710's energy efficient design in combination with OmniCore's re-generation technology achieves up to a 30% energy reduction, according to ABB. ABB



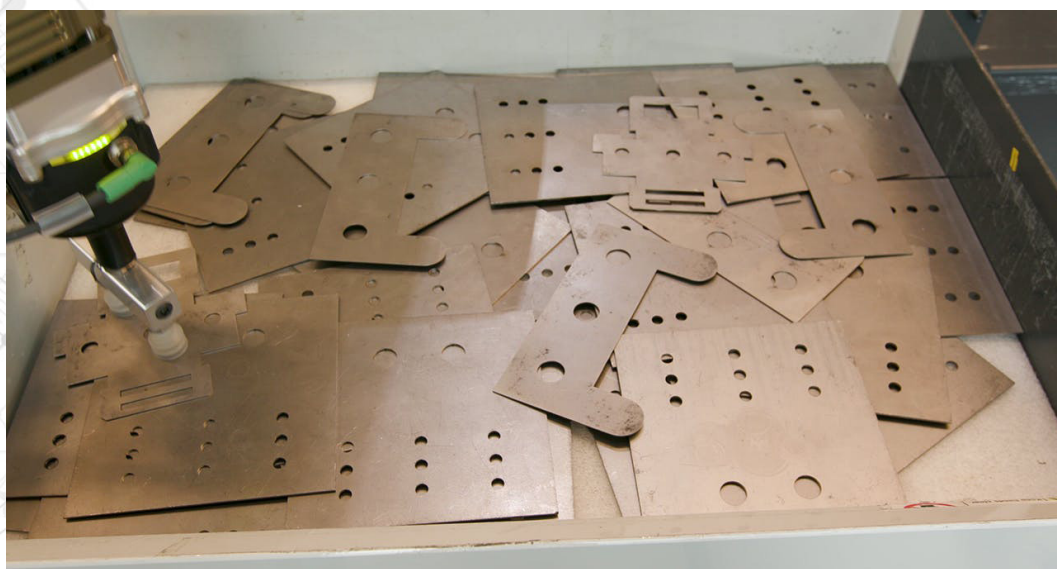
ACOPOStrak Intelligent Track and ACOPOS6D Technology.

- Additionally, a STEM Education Package in the Education Pavilion (Booth #5672) with an accompanying collaborative robot training cart showcases ABB's initiative to inspire students to pursue advanced manufacturing careers while preparing them for the future of work.

### Robots Get a Better Grip

NVIDIA and Intrinsic, a software and AI robotics company at Alphabet, are announcing their collaboration to use AI to advance the complex field of autonomous robotic manipulation.


Specifically, Intrinsic has integrated NVIDIA AI and Isaac platform technologies to advance dexterity and modular AI capabilities for robotic arms. The collaboration enables



Nvidia's AI modeling technology advances the complex field of autonomous robotic manipulation. NVIDIA

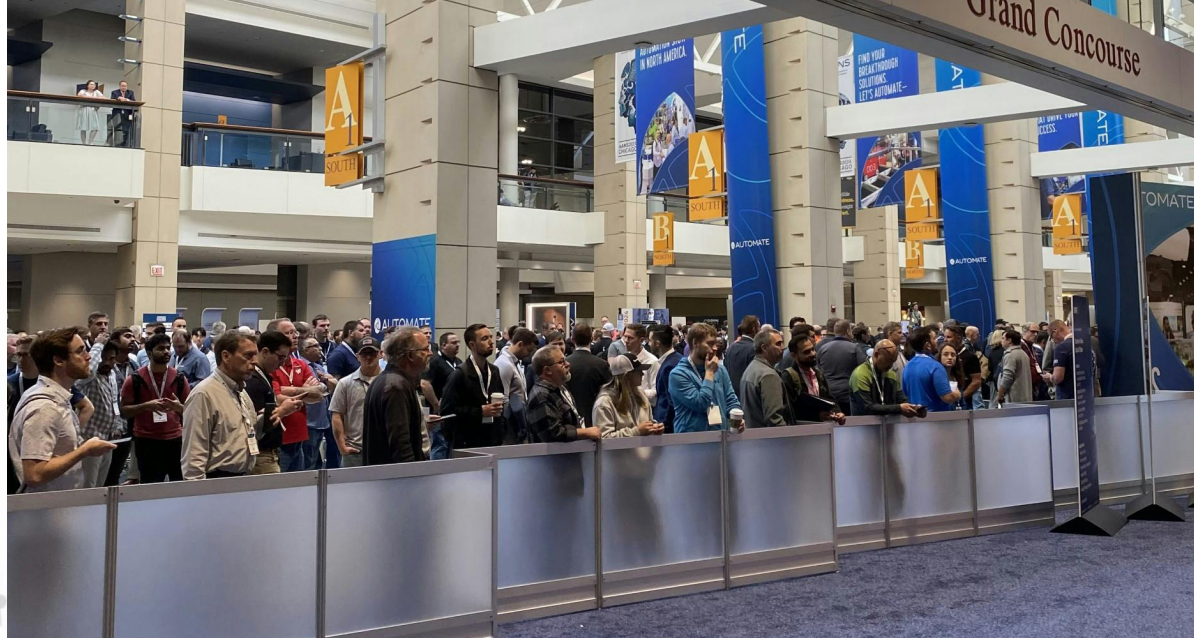
a robust collection of foundation models and GPU accelerated libraries, which will accelerate automation tasks. Bringing their technical advancements together, the collaboration will enable companies to scale and automate their industrial, logistics and manufacturing operations.

NVIDIA announced Isaac Manipulator, a collection of robotics pretrained models, libraries and reference hardware in March. [Isaac Manipulator](#) offers state-of-the-art dexterity and modular AI capabilities for robotic arms, with a robust collection of foundation models and GPU-accelerated libraries. Nvidia stated that it provides up to an 80x speedup in path planning and zero-shot perception increases efficiency and throughput, enabling developers to automate more new robotic tasks. Early ecosystem partners include Yaskawa; Universal Robots, a Teradyne company; PickNik Robotics; Solomon; READY Robotics; and Franka Robotics.

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Courtesy: Sharon Spielman

## AUTOMATE 2024 WRAP-UP

### CHAPTER 3:

# Automate 2024 Opens to Enthusiastic Crowd

SHARON SPIELMAN, Technical Editor, *Machine Design*

Held in the South Hall at McCormick Place in Chicago, the largest North American robotics and automation event unveils cutting-edge automation technology and networking opportunities.

The first day of A3's Automate Show in Chicago kicked off as industry professionals and technology enthusiasts gathered to explore the latest advancements in automation technology. The show floor was buzzing with activity, with more than 800 exhibitors showcasing state-of-the-art products and solutions, a host of demonstrations and engaging network opportunities.

Eric Danzinger, CEO and co-founder of Invisible AI, spoke about tangible solutions for today's manufacturing challenges.

Sharon Spielman



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Attendees were immersed in an environment filled with innovation and knowledge sharing. Industry experts shared insights through sessions and panel discussions, offering valuable perspectives on the current trends and future direction of automation technology.

In the session, “Demystifying AI: Tangible Solutions for Today’s Manufacturing Challenges,” Eric Danzinger, CEO and co-founder of Invisible AI, highlighted how artificial intelligence and computer vision can play a pivotal role in enhancing production and throughput despite challenges with understaffing and high turnover rates.

These technologies enable operators to quickly detect and address production bottlenecks optimizing resource utilization. By using video and real-time data alongside AI capabilities, manufacturers can pinpoint irregular cycles, identify missed steps and determine root causes of line stoppages.

He said to successfully integrate this technology companies must emphasize change management as an aspect of adoption. It is an organizational change rather than a stand-alone solution.

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Courtesy: Sharon Spielman

## AUTOMATE 2024 WRAP-UP

### CHAPTER 4:

# Standing-Room-Only Turnout at Tuesday's Automate Keynote

SHARON SPIELMAN, Technical Editor, *Machine Design*

**Siemens' Del Costy presented his keynote, "Expect More from Your Automation: Transforming U.S. Manufacturing" Tuesday morning to a packed room in the South Hall at Chicago's McCormick Place.**

“I’m older than A3, so I got to see a lot growing up,” Del Costy, president and managing director at Siemens Digital Industries, told the crowd attending the keynote presentation on Day 2 of Automate, the largest North American robotics and automation show (May 6-9).

Costy said he was born and raised in Detroit, so when automotive manufacturing really started to decline in the 1970s, “It broke our hearts,” he said. “The manufacturing renaissance that was happening in the Midwest, in Detroit, was the draw for so many people. And the fact is, manufacturing doesn’t just create manufacturing jobs: It has a multiplier effect in our community.”

The good news, Costy said, is that manufacturing is coming back. “It’s coming back in a different way,” he qualified. “This is our time. We have some of the most innovative minds in the world right here in this country. We have an opportunity to take an amazing leadership position...but it’s up to each of us to dig a little deeper.”

Significant investments are being made to establish modern facilities alongside maintaining traditional production setups. He said the way forward is through the integration of cutting-edge technologies into existing operations.

By adopting advanced automation and digitalization, manufacturers can optimize their assets, drive better results and extend the longevity of their facilities, ultimately changing the American manufacturing sector for better efficiency, sustainability and competitiveness.

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Courtesy: Yaskawa

## AUTOMATE 2024 WRAP-UP

### CHAPTER 5:

# A Booth Visit with Yaskawa at Automate 2024: Two Vision System Applications

Yaskawa featured a vision system that enabled fast, accurate robotic bin picking and robotic parcel induction work cell.

**A**t Automate 2024, two demos at Yaskawa's booth—illustrating the importance of real-time vision systems and high-speed picking capabilities—make Machine Design's pick of the day.

### Application No. 1: Parcel Induction and Simulation

In an order fulfilling demonstration, a six-axis Yaskawa GP12 robot is paired with a PickOne AI-powered induction software from Plus One Robotics. Random packages that are predefined or appear in random orientations move along a conveyor. The robot must latch onto the positions of the packages in real time and, without losing any speed, handle a wide variety of packages.

A variety of parcels are used to simulate what one might see in order fulfilling stations at a FedEx or UPS facility, according to Chris Caldwell, product manager at Yaskawa Motoman. Their businesses are high speed, but they also have a human in the loop," he said.

Speed is an important characteristic. The platform showed a pick rate of between 1,600 and 1,700 per hour for a variety of products in the cell. The AI-powered vision system enables 2D images of items, in addition to their 3D geometric surfaces, edges and corners.

[\*\*READ MORE: Standing-Room-Only Turnout at Tuesday's Automate Keynote\*\*](#)

Caldwell said the vision system can produce a pick for most items, but in the rare case that it doesn't, it fires off a "yonder call" to either a trained employee, or an off-site moni-

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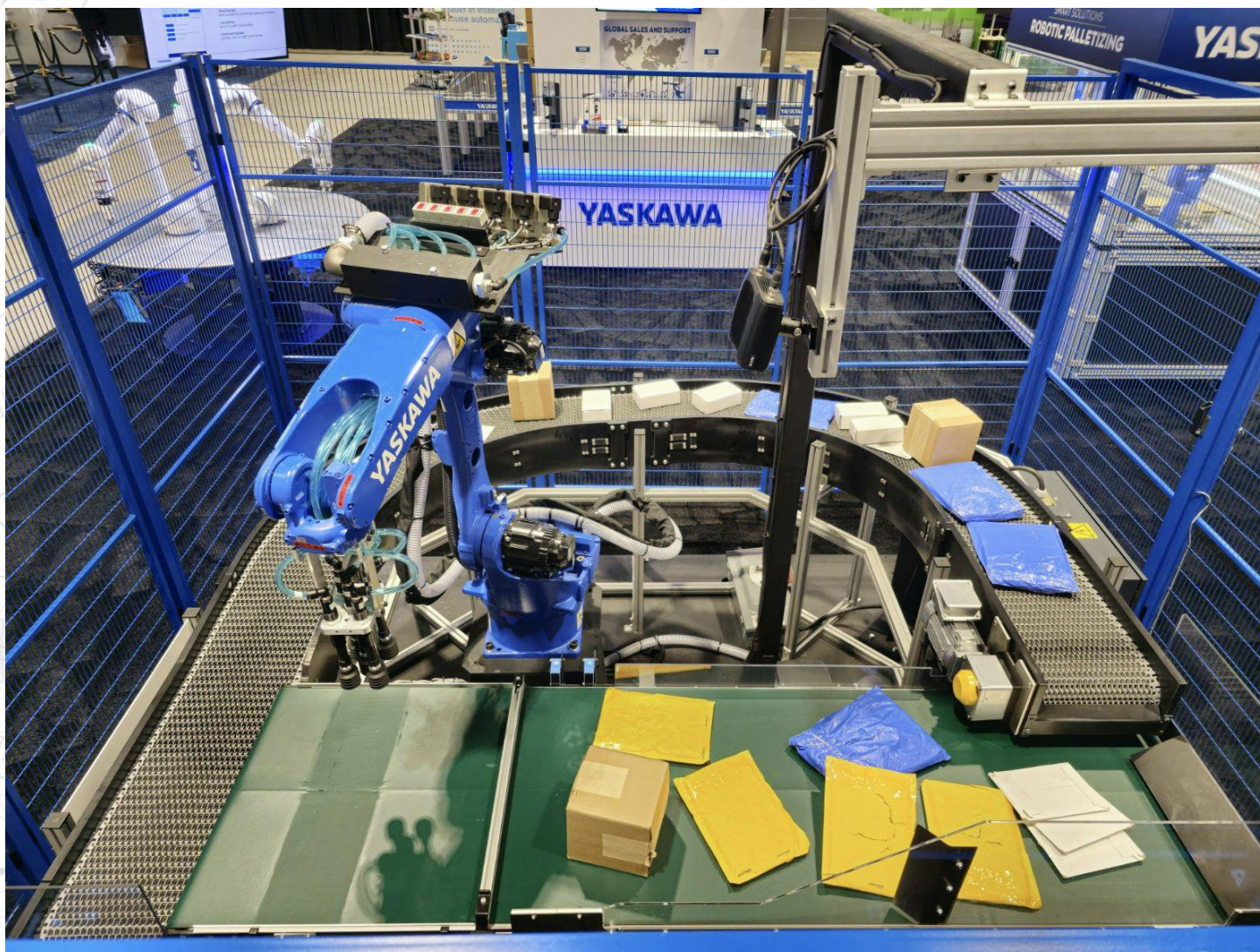
toring service. “Typically, one human can monitor between 10 and 20 cells and, within 30 seconds the employee will be able to interact with a call instructing the robot what to do and get that robot back up and running,” said Caldwell.

Robots and automation have for a long time tended to be operated on predefined points, whereby they were programmed with hundreds or thousands of individual points. “That type of automation has reached its peak,” said Caldwell.

The industry has seen growth in this specific application, according to Caldwell, especially with all parcel carriers, third-party logistics companies and e-commerce fulfillment centers. The benefit of the automated solution is that they can achieve very high pick rates each hour and need to set aside a small floorplan.

The demo featured a Keyence 3D vision system and relied on a predefined CAD model of the parts. An image sensor located above the cell projected light and detected objects contained in the bin.

“With their setup program, we load the robot model and end effector details,” explained Caldwell. “It does all of the path planning and collision avoidance.”




Yaskawa

[READ MORE: Automate 2024 Opens to Enthusiastic Crowd](#)

A very long gripper ensures the end effector can go deep into the bin and turn once inside, without running into edges. The robot distinguishes between objects (in this case, miniature toy robots) that have a very small difference and are programmed to be placed face up and face down. The robot meticulously selected parts and placed a set of robots face up on one tray and face down on a second tray.

Cycle time is a bit slower than the AI-powered induction, said Caldwell, but it addresses the key thing that people frequently look for: ease of use and setup. In addition, being able to pick deep into the bin, all the way to empty, is another feature when there are several thousand pieces of goods in a bin. The hardest parts to pick are the top 5% and the bottom 10%. "That's because you start running out of potential pics and you get into orientations and laying in a shadow up against the wall," said Caldwell. This solution, he said, picks until the bin is completely empty.

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Courtesy: A3

## AUTOMATE 2024 WRAP-UP

### CHAPTER 6:

# A3 to Celebrate 50 Years at Automate 2024 in Chicago

SHARON SPIELMAN, Technical Editor, *Machine Design*

From May 6-9, the Association for Advancing Automation will celebrate its golden anniversary in the Windy City in the South Hall of McCormick Place for Automate 2024.

The Association for Advancing Automation (A3) is gearing up to mark its 50th anniversary at the upcoming Automate 2024 event in Chicago from May 6-9. A3, founded in 1974 as the Robotics Industries Association (RIA) by the Society of Manufacturing Engineers (SME), has evolved over the years to become a leading advocate for automation technologies globally.

### Highlighting 50 Years of A3's History

**1974:** Robot Institute of America (RIA) is founded by the Society of Manufacturing Engineers (SME) and is headquartered in Dearborn, Mich.

**1976:** First Robots Show is co-located with the Assembled III show at the Donald E. Stephens Convention Center in Rosemont, Ill.

**1982:** Bernard Sallot creates an independent RIA separate from SME, changing its name to the Robotic Industries Association.

**1983:** Donald Vincent becomes the RIA president and leads the organization for 24 years, retiring in 2007.

**2007:** Jeff Burnstein becomes RIA president and leads global advocacy of automation in North America, Asia and Europe.

**2011:** The Robots, Vision & Motion Control Show rebrands to the first-ever Automate Show co-located with the ProMat Show at McCormick Place in Chicago.

**2016:** Founding of A3 Mexico, the only trade group organized specifically to serve the automation industry in Mexico and Latin America.

**2022:** Automate Show and Conference returns to Detroit, becoming an annual standalone event.

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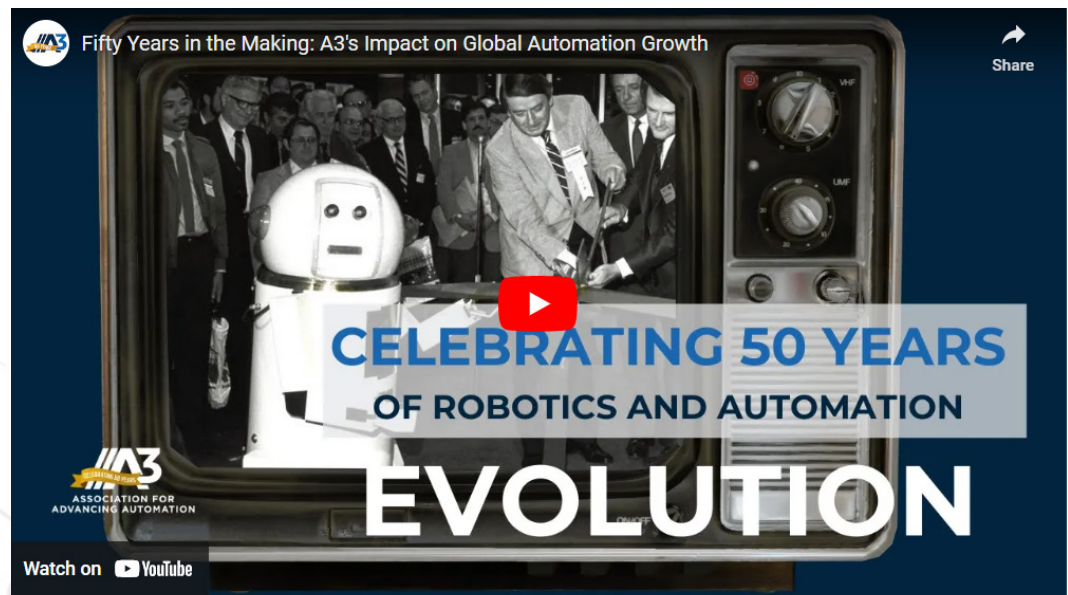
**2024:** Automate Show and Conference relocates to McCormick Place in Chicago in time to celebrate A3's golden anniversary.

Through significant milestones such as those listed above, A3 has played a pivotal role in advancing the automation industry.

### Automation in Action

The City of Big Shoulders is a suitable venue to carry this year's Automate Show as it promises to be the largest in its history—with more than 365,000 square feet of industrial automation solutions and technology. Attendees can expect an environment where they can witness automation in action; engage with industry experts; and explore the latest advancements in robotics, artificial intelligence, sensors and more.

[In an exclusive interview with Machine Design's Rehana Begg](#), A3 President Jeff





Burnstein contextualized the robotics outlook over the past year and shared his expectations for this year's event.

In the interview, Burnstein elaborated on the implications of the following topline trends for the U.S. markets:


- *Technology and AI:* AI takes on Manufacturing's "Unsolvable" Challenges
- *Industry Growth and Business Impact:* Robotics and Automation Accelerating Adoption and ROI
- *R&D and Innovation:* Mobile Robots and Collaborative Robots are Driving Industrial Innovation
- *The Speed of Change:* The Factory of the Future is No Longer in the Future

Burnstein also said that attendees can look forward to a panel discussion on current advancements in humanoid robotics and leadership panels with industry executives on latest trends.

New for this year's show, an Automate Startup Challenge will feature 10 startup companies pitching their solutions to a panel of judges, competing for a \$10,000 prize.

A women's empowerment forum is also new this year. Despite all the great jobs available, said Burnstein, the industry has delayed tapping into the market's full potential.

Automate 2024 is free to attend. [Register for a badge](#) that grants access to the show floor with more than 800 exhibiting companies from around the world and offers engagement with more than 200 speakers and industry leaders at the educational and keynote sessions.

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# From Automation Essentials to Advanced Solutions

SHARON SPIELMAN, Technology Editor, *Machine Design*

The following roundup highlights the range of solutions that were on display at Automate 2024. For more coverage, including a host of video demos, visit [Machine Design](#).

Explore a range of products including pressure, vacuum and temperature transducers along with essential components like cylinders, switches, encoders and photodiodes. These products are shaping the way industry works and interacts with automated systems.

## Quantum Devices Partners with OEMs to Provide Encoders

In addition to designing and manufacturing encoders for a range of applications, the company also manufactures custom photodiodes.

[QUANTUM DEVICES](#), a United States based encoder manufacturer, designs and manufactures high quality, high performance incremental optical rotary encoders for a range of industries and applications.

As seen at the Automate Show, the company partners with original equipment manufacturers (OEMs) to provide application-specific encoders for servo motors, robotics and many other applications. The company says it can accommodate special design requests and deliver custom solutions that add value to equipment and automation systems.

Their encoders are designed to offer numerous configurations to meet a range of motion control requirements in manufacturing, simulation, printing and more. From medical labs to warehouse distribution centers, a range of [industrial and commercial applications](#) use optical rotary encoders.

The company also manufactures custom photodiodes with either single or multiple diode structures on a single chip. This configuration is a p-on-n structure and can be used to detect the



Courtesy: Quantum Devices






Quantum Devices

presence and absence of minute quantities of light. The linearity of this response can range over several orders of magnitude, from 10 picowatt/cm<sup>2</sup> to several hundred MW/cm<sup>2</sup>.

Quantum supports the design of photodiodes from concept through final application of the product in manufacturing. Design flexibility has made photodiodes a component

of choice for many applications as low-cost silicon wafer fabrication technologies continue to provide high reliability and long-term performance.

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## Dynatect Manufacturing Inc. Offers Protective Solutions in Automation

With a mission to improve human-machine safety and machine uptime, the company brings reliable engineered solutions to complex and specialty applications.

**DYNATECT** provides protective solutions in automation—such as automated doors, clutches, cable carriers, manual doors, ball screws, bellows, roll-up doors and machine-door actuators—to leading manufacturers, integrators, distributors and consultants.

Products and services specifically for the manufacturing, welding and metalworking sectors include automated barrier doors and machine safety doors; cable and hose carriers; door actuators for automating CNC machine doors; bellows, covers and machine roof covers; machine pit roll-up covers; ball screw repair; and way cover repair.

The company's automated machine safety door (pictured right) is designed to be an effective solution



Courtesy: Dynatect Manufacturing Inc.

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## AUTOMATE 2024 PRODUCT SPOTLIGHT

for increasing productivity and industrial safety. The high-speed door isolates hazardous operations from personnel, equipment and materials, but it allows for easy access when needed, minimizing cycle times to keep production lines

running efficiently.

Beyond its core function as a safety barrier, the AMSD can adapt to various automated processes, functioning as both a secure barrier and an industrial safety curtain. This automated machine door can be equipped with an optional LiDAR scanner, which senses an obstruction approaching the closing door and quickly stops the door to avoid impact, providing an additional layer of safety for workers and equipment.

It can be used with existing machine guard panels to create a comprehensive machine guarding system. This system optimizes separation between hazardous and non-hazardous areas within a facility.

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## Camozzi Automation Showcased Pneumatic and Electric Automation Solutions

The company is working on the digitalization of production processes and the creation of real cyber-physical systems to enable the integration of mechanical, electronic and digital elements.

AT AUTOMATE 2024, [Camozzi Automation](#) showcased its latest innovations designed to help manufacturers optimize productivity, efficiency and safety across their operations.

Camozzi offered attendees to explore pneumatic and electric automation solutions by demonstrating a comprehensive portfolio of products, including proportional technology, actuators, grippers and IIoT connectivity solutions.

For applications that require linear and rotary movements, the company offers ISO or non-standardized actuators. All actuators have a modern design and are developed to save space and weight and can have different construction types to satisfy the most critical sectors.

Products and solutions for electric actuation include electromechanical cylinders and axes with relevant motors and drives to guarantee maximum flexibility and easy installation. A series of accessories facilitate the assembly within more complex systems and increase the performance of the com-



Courtesy: Camozzi Automation



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## AUTOMATE 2024 PRODUCT SPOTLIGHT

ponent itself.

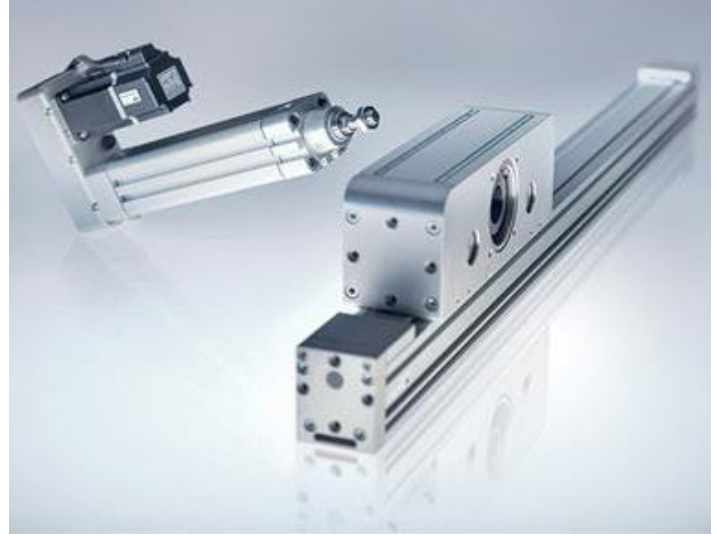
The company says it works on both the digitalization of production processes and the creation of real cyber-physical systems to enable the integration of mechanical, electronic and digital elements—constantly improving process performance.

Attendees got to see how solutions can help achieve greater agility, flexibility and performance as well as engage with the team to discuss specific automation challenges and explore customized solutions.

“We are thrilled to participate in Automate 2024 and connect with industry leaders from across North America,” said Troy Baker, national director of sales at Camozzi Automation. “[The] event provides a valuable platform to showcase our commitment to developing innovative automation solutions that empower manufacturers to achieve operational excellence.”

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**Products and solutions for electric actuation include electromechanical cylinders and axes with relevant motors and drives to guarantee maximum flexibility and easy installation.** Camozzi Automation

## Nason's Switches, Cylinders and Transducers Come Standard or Customized

The company offers switches, space-efficient cylinders and state-of-the-art transducers. If they do not have what is needed in stock, they will build it in their South Carolina facility.

AMONG A RANGE of components that [Nason](#) had on display at its Automate 2024 booth were its CR series stainless steel pneumatic cylinders (pictured above). Designed for smooth startup and operation, the cylinders are constructed with low-friction Nitrile seals and factory lubricated with FDA-complaint food-grade PTFE-impregnated grease, the stainless steel cylinders' precision-machined components and low-friction bearings ensure long life and effortless operation.

The stainless steel in the CR Series is non-porous and resistant to corrosion, making them ideal for applications that require strict compliance to purity and quality standards, such as pharmaceutical and food preparation, or areas that need to stand up



Courtesy: Sharon Spielman

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## AUTOMATE 2024 PRODUCT SPOTLIGHT



Pressure, vacuum and temperature transducers provide a continuous output range as they convert measurements into various outputs.

Sharon Spielman

to punishing elements, like wash-down environments.

Nason's Danny Dehler also showed Machine Design its line of compact transducers, which range from basic temperature transducers to customized wireless pressure transducers. Hydraulic and pneumatic designs with accuracy ranges of 1%, 0.4% and 0.25%, and 0.15% and vacuum ranges up to 10,000 psi serve a host of industrial applications.

The company offers automated assembly machines/systems, sensors and sensor integrated systems as well as design, engineering and support services.

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## KHK Offers a Multitude of Metric Gears

KHK has been making metric gears for nearly 90 years. Gear manufacturing requires proper material selection, cutting machines, lathes, rack panels, hobbing machines, teeth shape measurement and more.

SPECIALIZING IN METRIC GEARING, KHK USA has been producing its product line since 1935. Brian Dengel, gearing executive at KHK, showed us the metric gears for industrial automation applications at Automate 2024. There were rack and pinions in a range of lengths and pitch as well as spur, bevel and worm gears in an assortment of sizes and configurations on display.

The production process required for gear manufacturing covers a lot of ground, including cutting of materials with cutting machines, processing of materials with lathes, cutting of cylindrical gear teeth with hobbing machines, cutting of rack teeth with rack panels, cutting of internal gear teeth with gear shapers, deburring, blackening, and more. Other processes such as injection molding, sintering, rolling and casting are also used. The gears are finished with polishing, tempering, surface processing, teeth shape measurement and examination with 3D measurement devices.

The company also offers [free software for gear calculation and gear drafting](#). With a few known parameters, these



Courtesy: Sharon Spielman

programs can help design the best gear geometry for each unique application.

[READ MORE: Automate 2024 Wrap-up: Shifting the Robotics Paradigm to Flexible, Agnostic Solutions](#)

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Courtesy: Wrightstudio | Dreamstime

## AUTOMATE 2024 WRAP-UP

### CHAPTER 8:

# From Concept to Production: Navigating IoT

SHARON SPIELMAN, Technical Editor, *Machine Design*

Very Technology's Daniel Fudge sat down with Machine Design after his presentation on the Automate 2024 in May to talk about the company's expertise in IoT and shepherding a concept through to production.

Established in 2011, [Very Technology](#) initially focused on software development and websites, eventually finding a niche in the Internet of Things (IoT). According to Daniel Fudge, director of data science and machine learning at Very, one of the company's core strengths is in its ability to bridge the gap between ideation and execution.

Whether it involves aiding startups in their maiden venture or assisting traditional companies in integrating connectivity and intelligence, Very approaches each project with a startup mentality, Fudge said. They offer a range of services, from electrical and board design to data pipeline management and software development. "We cater to a wide range of client needs," he explained.

When it comes to IoT, Fudge says manufacturing and edge computing are emerging as focal points of technological advancement. From predictive maintenance solutions in manufacturing to edge computing applications like automatic speech recognition, industries are using the advanced technologies of Industry 4.0 to enhance operational efficiency and drive innovation.

### Incorporating IoT in Manufacturing

Connectivity and integration have changed the manufacturing process. Very emphasizes the significance of utilizing IoT technologies for tasks like inspection and process optimization. By leveraging machine vision and data analytics, companies can detect defects, optimize operations and gain valuable insights into their manufacturing environments, Fudge said.

Machine learning plays a big role in deciphering complex data patterns and streamlining manufacturing processes, too, Fudge noted. By harnessing artificial intelligence (AI) and

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machine learning algorithms, companies can detect process shifts, standardize operations and unlock invaluable insights into their manufacturing environment, he said, noting that the collaboration between human expertise and technological advancements creates a synergistic approach to enhancing manufacturing capabilities.

While the allure of AI is undeniable, Fudge says it is essential to manage expectations and navigate the complexities of AI integration effectively. He said that Very emphasizes the importance of iterative development cycles and incremental value delivery. By addressing challenges methodically and focusing on unlocking immediate value, companies can embark on a sustainable AI adoption journey, Fudge said.


When asked about security and data privacy in IoT deployments, Fudge said that Very emphasizes the importance of implementing robust security measures, particularly in data transmission and storage.

“That is something that we’ve had to...educate [customers about] but also up our game,” Fudge acknowledged, “because...you absolutely cannot have downtime, right?” By adopting a layered approach to data security and encryption, companies can mitigate potential risks and safeguard sensitive information, he said. Additionally, the bidirectional nature of IoT connectivity underscores the significance of securing data transmission both to and from the cloud.

According to Fudge, Very’s holistic approach to IoT deployment and innovation underscores the company’s commitment to guiding clients through the intricacies of product development—from concept to production.



**During his presentation on the Automate Innovation Stage, Daniel Fudge, director of data science and machine learning at Very, explored how companies can connect devices to the cloud to accelerate business and unlock the full value of data. He also focused on the real-world applications of ChatGPT and large language models (LLMs) within the realm of automation and how to rapidly deploy these technologies.** Sharon Spielman

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## AUTOMATE 2024 WRAP-UP

## CHAPTER 9:

# Automate 2024 Hits New Heights with Record Attendance, Industry Acclaim

SHARON SPIELMAN, Technical Editor, *Machine Design*

**Industry leaders laud the success of Automate 2024, highlighting the role of robotics and automation technologies in addressing global labor shortages and driving business growth.**

**A**utomate 2024 achieved unprecedented success last month with record-breaking attendance and exhibitor participation. According to a show press release, 42,895 registrants from around the globe convened at Chicago's McCormick Place from May 6-9 to explore the latest advancements in robotics, artificial intelligence and automation technologies.

Hosted by the Association for Advancing Automation (A3), the show marked a historic milestone with 867 exhibitors—up 13% from the previous year—spanning more than 320,000 square feet of exhibit space.

**[READ MORE: Automate 2024 Wrap-up:  
Shifting the Robotics Paradigm to Flexible, Agnostic Solutions](#)**

"The tremendous attendance and engagement at Automate 2024 will help stimulate increased adoption of robotics and automation technologies," said Jeff Burnstein, president of A3. "Driven by labor shortages, companies throughout the world now seek automation solutions to remain competitive and grow their businesses. Automate has emerged as the one show that offers valuable solutions and real-world expertise designed for users in every industry and application area."

Burnstein is not alone in his positive reaction to the show. "This show has been an enormous success," said Eric Halvorson of DigiKey. "The turnout has just been phenomenal."

## AUTOMATE 2024 WRAP-UP

## CHAPTER 9: AUTOMATE 2024 HITS NEW HEIGHTS WITH RECORD ATTENDANCE, INDUSTRY ACCLAIM

Chicago has just been a fantastic place for this show...we're seeing a lot of customer engagement. We are very excited about what's going on here."

Phoenix Contact's Ted Thayer, who had started to lose his voice by Day 3, had this to say: "It's been a really good show for us so far...I've talked to a lot of great customers about our open automation platform plus about all the different tie-ins we have...it's been wonderful."

"We just broke our record for number of visits," said Edward Neff, CEO of SMAC Corp., a maker of programmable electric actuators based on moving coil linear servo motors. He also recognized that times are changing: "Everybody wants to switch [to electric]...pneumatics are World War II tech...they're hanging in there, but you can buy the pneumatic stuff on Amazon now."

"If you get your price low enough, then you get lots of people coming by," he added. "And it took us a while to do it, but we did it."

[READ MORE: From Concept to Production: Navigating IoT](#)

In the Tormach booth, CEO Dan Rogge said they had the only machine at the show that was cutting parts, "So a lot of people [are] paying attention to that. I think we found one of our niches here."



"The show's been really well attended," Mujin Corp.'s Josh Cloer told Machine Design. "There's a lot of robotics integrator companies that are coming by and looking at how they could use the Mujin controller to advance the capabilities of their systems or shorten the time it takes to deploy a system commission system. And there's a lot of good end users out here looking for bin picking and palletizing," he said.

Echoing all of the above, Brian Dengel from KHK USA, said, "Traffic has been great. Lots of new opportunities. Great to see old customers. Great to meet new customers. Terrific."

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Courtesy: Sara Jensen

## AUTOMATE 2024 WRAP-UP

CHAPTER 10: Bonus Content Provided by *Power & Motion*

# Automate 2024 to Spotlight Latest Robotics and Automation Technologies

SARA JENSEN, Executive Editor, *Power & Motion*

A range of sensors, vision systems, motion control components and other technologies used in automation systems will be on display at this year's event.

**A**utomate has become the largest event for showcasing the latest automation solutions. These include robotics, sensors, vision systems, motion control components — including fluid power- and electronic-based technologies — artificial intelligence and more.

The 2024 looks to be one of the largest editions yet with over 800 exhibitors anticipated and a 25% larger footprint than the 2023 show which broke the record for being the biggest in the show's history. Due to the success of Automate 2023 and demand from the industry for more frequent events, [it was announced the show would move to an annual cadence](#).

In addition, the 2024 event will be held at McCormick Place in Chicago which will provide the extra space required of this ever-expanding show.

Automate 2024, held May 6-9, encompasses a large exhibition space as well as 200 speakers who will present on various topics related to automation, including several technical education courses. This year's event will include the show's first Women's Empowerment Forum with a keynote address by MIT Professor Daniela Rus as well as a panel discussion with female executives in the automation industry.

"The Women's Empowerment Forum, combined with our featured keynotes, not only recognizes these incredible female leaders who are driving change, but also helps to strengthen awareness of the critical need for women in the industry," said Deb Kling, vice president of marketing for A3 (Association for Advancing Automation) which hosts

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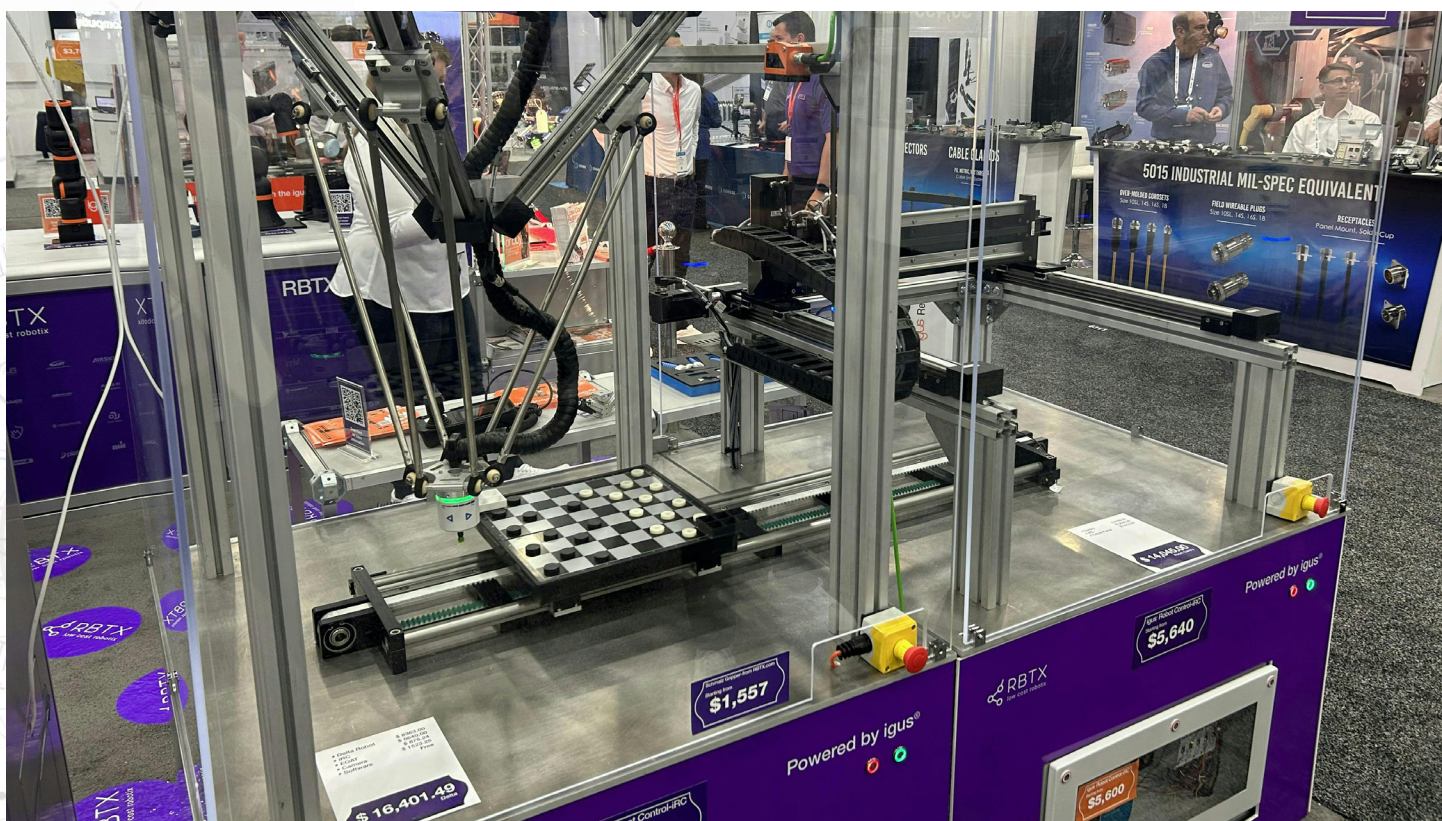
There will be a number of things to look forward to at [Automate 2024](#), including new technology introductions and a startup challenge for companies who want to pitch their solutions to a panel of judges for a chance to win \$10,000. A3 will also be celebrating its 50th anniversary throughout the show. Following are some of the highlights anticipated at this year's event.

**[Watch an interview with Jeff Burnstein, President of A3, from Machine Design — an Endeavor Business Media partner site — to learn more about what's in store for Automate 2024.](#)**

### NFPA Presenting Digital Fluid Power Panel Discussion

The National Fluid Power Association (NFPA) will host a panel discussion entitled "Digital Fluid Power - Advances & Controls in Hydraulics & Pneumatics" at Automate 2024. It will be held as part of the Automate conference program and is scheduled to take place Wednesday, May 8 at 8:00 a.m. Central.

Per NFPA, three panelists will offer their insights into the latest fluid power technologies and how they interconnect with the digital industrial transformation taking place in the automation sector. The panelists will share how digitization and automation are being used with hydraulic and pneumatic technologies to bring about new performance capabilities in



At Automate 2023, igus demonstrated its low-cost automation portfolio featuring various robotics components which can easily be integrated together to create a full system solution. igus showed the capabilities of these components by having a robot play a game of checkers during the show. S. Jensen



industrial machinery.

Panelists include:

- Chris Harwood – Sun Hydraulics
- Adam Livesay – Elevāt
- Dan Barrera – Bosch Rexroth

NFPA said in its announcement of the panel discussion that it is encouraging members to attend the show as the automation sector is a key customer market for fluid power. Automation was also noted as a technological area of focus for hydraulics and pneumatics in the association's 2023 Technology Roadmap. As such, the association is making efforts to expand educational opportunities and resources related to this and other R&D focus areas outlined in the roadmap.

[READ MORE about the 2023 Technology Roadmap in the article "Assessing Future Design Needs for Hydraulics and Pneumatics."](#)

### **Bosch Rexroth Showcasing Factory Automation Technologies**

Bosch Rexroth plans to highlight its wide range of technologies which can be used to implement automation in a range of manufacturing operations. These include digital engi-



Bosch Rexroth will offer various demonstrations and presentations covering multiple automation technologies at Automate 2024, including mechatronics, linear motion, transport and robotics. Bosch Rexroth

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neering tools as well as support for planning and installation.

The company will also provide demonstrations of many of its automation solutions during Automate 2024. Among these will be a demo of the Flexible Transport System (FTS) with an integrated Kassow collaborative robot. The FTS is designed to provide a fast, precise and flexible conveyor system to help move product through a facility. It is driven by Bosch Rexroth linear motion technology which enables high-speed positioning of products while enabling bi-directional, synchronous, or asynchronous moves.

Additional demos will include:

- **ctrlX AUTOMATION** – the demo will feature a three-axis ctrlX DRIVE linked to a ctrlX CORE industrial PC running in real-time as well as other components that can be used as part of this automation ecosystem.
- **Smart Conveyance Demo** – this demo will include Bosch Rexroth's aluminum structural framing and TS2 plus palletized assembly conveyor for assembly solutions. Compact modules use three linear axes to form a Cartesian robot, automating assembly with the company's linear motion components.
- **NEXO and OPEX tightening systems** – the new NEXO nutrunner and OPEX digital torque wrench are designed to seamlessly integrate into conveying systems, aluminum framing workstations, and more while incorporating complete control directly inside the device, providing a sleek, cordless aesthetic.

ITT's Enidine and Compact Automation brands will show various motion control components at Automate, including actuators and cylinders as well as energy absorbers and vibration isolation devices. ITT Inc.

### ITT Brands Exhibiting Motion Control Components

ITT Inc.'s Enidine and Compact Automation brands plan to exhibit their various motion control components at Automate 2024. According to the company, the technologies on display are designed for durability and reliability to help reduce downtime and the amount of maintenance required for automation systems.

Enidine will exhibit products for energy absorption, vibration isolation and noise attenuation problems, all of which help to prevent wear and tear while also improving the working environment for machine operators. These include:

- **Platinum Extended Range (PXR) Series:** This newly expanded line of small bore non-adjustable hydraulic shock absorbers is engineered to absorb maximum energy conditions from a wide range of industrial applications.
- **Corrosion Resistant Shocks (CRS) Series:** These eco-friendly, stainless steel small bore adjustable and non-adjustable industrial shock absorbers are highly durable for harsh-environment industrial and wash down applications.





- **Heavy-Duty (HD/HDN) Series:** The HD/HDN Series of heavy-duty shock absorbers are designed to protect both people and equipment from large impacts, while also increasing operating lifespan.

cWire Rope and Compact Wire Rope Isolators: Enidine's all-metal and environmentally stable wire rope isolation solutions offer versatile vibration damping up to 100,000 lbs.

Compact Automation will show its actuation and cylinder products designed to provide precise and reliable positioning for various automation tasks:

- **Round Line (RL) Cylinders:** Round Line Stainless Steel Cylinders are durable and configurable to meet exact motion control needs and reduces the need for equipment maintenance.
- **Rotary Actuators:** Turn-Act Rotary Actuators deliver zero backlash, no loss of motion, and smooth rotation throughout an extended product lifecycle.
- **Inch Cylinders:** The highly customizable Inch Cylinder line is space efficient and designed for easy, fast, and affordable repair. Products can be overhauled in the field in a matter of minutes using cylinder repair kits, resulting in low cost of ownership.
- **NIASA Electric Actuators:** Developed in partnership with NIASA, Compact's electro-mechanical actuators deliver precise and safe linear movement, regardless of speed.

[READ MORE: Automation to Drive Growth for Linear Actuator Market](#)

### Cincoze Displaying AI Edge Computing Products

Cincoze, a developer of rugged embedded computer solutions, intends to show a range of products related to the theme "Comprehensive AI Edge Computing Solutions." Among the technologies on display will be the company's rugged embedded computers, industrial panel PCs and monitors, embedded GPU computers as well as several new products.

The GOLD line of GPU computers, for instance, are designed to provide the computing necessary for evolving artificial intelligence (AI) technologies as well as machine learning (ML) and AIoT — the Artificial Intelligence of Things which combines AI and internet of

Cincoze's GOLD line of embedded GPU computers offer the computing power required for machine learning and artificial intelligence related applications which are growing in use with automation systems. Cincoze



things (IoT) to improve human-machine interactions and data collection and analysis.

Within this line is the GM-1000, a high-performance computer suited for machine vision applications. The GM-3100 series which will also be on display can perform sophisticated and complex visual inspection or autonomous driving, benefitting various robotics applications.

The company said a highlight of its new products section will be its new Machine Computing - DIN RAIL PC line tailored for use in control cabinets for smart manufacturing applications. It provides a high level of processing performance as well as the ability to add I/O, storage and more to meet specific application needs.

### Stäubli to Demo Range of Robotics Technologies

Stäubli Robotics plans to exhibit and demonstrate its range of robotic solutions, including its four- and six-axis industrial robots, mobile robots and automated guided vehicles (AGVs).

Among its demonstrations will be a new electronics demo cell featuring a TS2-60 ESD robot showing automatic screwing and connecting of electrical connectors for electronic boards. The company's ESD robots are designed for the electronics industry, offering safe handling of sensitive components and the ability to operate in electrostatic protected areas (EPAs).

Another demo will show how the company's TS2-60 SCARA robot can be used in battery stacking processes.

Robots for use in sensitive environments, such as those for the food industry, will also be on display to demonstrate their capabilities in wet and humid environments (HE). The HE version of the TX2-200 six-axis robot will be launched to the North American Market at Automate. Its load capacity of 170 kg and 2.2 m reach aids handling of heavier items in sensitive working environments.

**Stäubli's TX2-200 robot is a six-axis machine modified heavier handling tasks in wet and humid environments.** Stäubli Robotics





Stäubli will also show its various services for robotics such as its portal for preventative maintenance. In addition, the company's fluid connectors division will be part of the exhibit showcasing its flexible tool changing systems and Multi Coupling System (MCS), which enables quick, safe, simultaneous connection of disparate energy sources.

[READ MORE: Rapid Growth Ahead for Mobile Robot Components Market](#)

### Awards Programs Honor Innovations in Automation Technology and Robotics

A3 will be presenting awards for innovations in automation and robotics during Automate 2024.

The annual Joseph F. Engelberger Robotics Award honors robotics leaders from around the world who excel in technology development, application, education and leadership. Per A3, the award is named after the man who is credited with being the founding force behind industrial robotics.

Winners of the 2024 award are:

- Dr. Reymond Clavel, Professor Emeritus at Ecole Polytechnique Fédérale Lausanne (EPFL), the Swiss Federal Institute of Technology, who was selected as a technology



## ECM's advanced Motor CAD platform

Advanced design-to-manufacture software for **next generation** motors

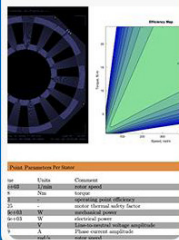
### STAGE 1

**PrintStator**  
Modelling



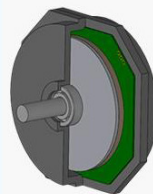
### STAGE 2

Datasheet  
Review &  
Refinement



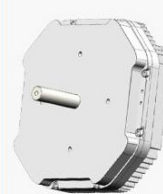
### STAGE 3

Parametric  
CAD Model  
Generation



### STAGE 4

Refined CAD  
Model with  
Integration  
and System  
Requirements



### STAGE 5

Manufacturing,  
Assembly and  
Testing of Final  
Prototype



PrintStator from ECM is an advanced electric motor computer-aided design platform which aids the design, optimization and manufacture of electric motors across multiple use cases while also taking into account global technology and regulatory trends. ECM

winner for his pioneering role in the invention of the Delta robot concept.

- Marc-Olivier Demareux, who was selected as a technology winner for his role in pioneering the Delta robot and bringing it to market.
- Joe Gemma, Chief Revenue Officer (CRO), Wauseon Machine, who was selected as the winner for leadership, recognizing more than 35 years in the automation industry, including past stints on the Robotics Industries Association (RIA), now A3, board of directors and the president and board member of the International Federation of Robotics (IFR).

The winners are recommended by a panel of industry leaders based on all present and past nominations from the industry and voted upon by the past chairs of the RIA. An awards dinner will be held at Automate during which the winners will be honored.

New in 2024 is the Automate Innovation Awards, a competition designed to recognize and celebrate groundbreaking automation solutions introduced to the market over the past 12 months.

Five finalists in three categories — hardware, software and systems — were selected by a panel of judges from the automation industry and narrowed down to three winners, one from each category.



The SCAN&GRIND from  
GrayMatter Robotics enables  
mass- and specialized-  
production grinding.

GrayMatter Robotics

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Automation



The three winners have been selected for their innovative and unique designs as well as their ability to offer benefits such as reduced costs and improved efficiencies. The winners will be honored during a ceremony at Automate:

- **Hardware:** The Embedded+ Architecture from AMD is the first architecture of its kind to combine the AMD x86 processor with integrated graphics and programmable hardware for critical AI inferencing and sensor fusion applications. This architecture simplifies and accelerates design to help bring optimized automated technology and products to market faster.
- **Software:** PrintStator is an advanced electric motor computer-aided design platform developed by Boston-based startup ECM to enable the design, optimization and manufacture of electric motors across multiple use cases while also factoring in global technology and regulatory trends. Motors designed using PrintStator incorporate ECM's PCB Stator technology. They are 70% lighter than conventional options, use 80% less raw materials to produce, are up to 30 dB quieter and achieve efficiencies in excess of 90%.
- **Systems:** SCAN&GRIND from GrayMatter Robotics provides a solution to meet the efficiency, consistency and adaptability in high-mix manufacturing environments which overcomes the challenges of manual grinding operations. Traditionally, robots have been limited to mass-production grinding due to the economic impracticality of manual programming. The system's advanced features, including automated programming of the robot based on scanned data, customizable process parameters and automatic target recognition, make it feasible to leverage robotic technology in a wider range of mass- and specialized-production applications.

"Innovation drives the advancement of automation technology for increasing industrial efficiency, improving worker and consumer well-being and achieving greater sustainability," said Clarissa Schwendeman, director of marketing, A3. "By recognizing and rewarding innovations that play a pivotal role in shaping the future of automation, we celebrate the industry pioneers leading us toward a smarter, more efficient and sustainable future."

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