



IMTS2022 CONFERENCE

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CONFERENCE GUIDE

The IMTS 2022 Conferences
September 12 – 15, 2022 | West Bldg.
McCormick Place, Chicago
www.IMTS.com/show/education/IMTS2022.cfm



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CHICAGO 9.14.22



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2022 RACE INFO

Race Start:
Wednesday, September 14
7:00 a.m.

Race Location:
DuSable Harbor
150 N. Lakeshore Dr.
Chicago, IL 60601

Pricing:
5K: \$35 / \$40 day of
1 mile: \$25 / \$30 day of

PACKET PICK-UP

McCormick Place Level 2.5

Sunday, September 11:
12:00 p.m. - 5:00 p.m

Monday, September 12:
10:00 a.m. - 5:00 p.m.

Tuesday, September 13:
10:00 a.m. - 5:00 p.m

**Race Day Packet Pick-Up
(DuSable Harbor):**
6:15 a.m. - 6:45 a.m.

100% of the proceeds from every Miles for Manufacturing 5k goes toward equipment needed to further manufacturing education. To date, **more than \$125,000 has been donated to various schools** throughout the country.

Sign up at: racepenguin.com/events/miles-for-manufacturing/



Welcome to The IMTS 2022 Conference!



We're excited to host you in The IMTS 2022 Conference. Learning and continuing to develop your knowledge of the ever-changing facets of manufacturing technology is why we bring this conference to every IMTS. There are more than 70 educational sessions brought to you by the leading technology experts in the industry. We strive to bring the best and brightest presentations to you each cycle, hand-picked from hundreds of submissions.

You'll get to hear about the latest technology solutions and then walk the show floor to see them in action. Only at IMTS can you learn and then experience the industry's latest machinery, software, and related products all in one place!

I'm excited for your journey through IMTS 2022 this year. It's been a long four years since the last IMTS. We look forward to seeing all the familiar faces and new faces walking the exhibits, learning in the conferences, and networking with peers and industry leaders.

Welcome to Chicago!

See you soon,

Bonnie

A handwritten signature in black ink that reads "Bonnie Gurney".

Bonnie T. Gurney
Vice President – Strategic Partnerships
AMT – The Association For Manufacturing Technology



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A wealth of learning opportunities

After hosting The IMTS 2018 Conference online, welcome back! For the first time in four years, speakers and attendees will come face-to-face to share information, gain knowledge, and form new connections.

Brought to you by AMT – The Association For Manufacturing Technology and GIE Media’s Manufacturing Group, The IMTS 2022 Conference takes place Monday – Thursday, Sept. 12-15, 2022, at Chicago’s McCormick Place, West Building. Registration is open for the 69 conferences and more details can be found at <https://www.imts.com/show/education/IMTS2022.cfm>.

Manufacturing has faced many challenges since these conferences were last held in person, yet technology hasn’t stopped advancing, so attending The IMTS 2022 Conferences is your opportunity to learn from a range of experts across a variety of topics. Our line-up of in-depth, educational sessions will deliver actionable insights you can take back to the shop floor to move your business forward.

Presented across four days in three tracks, areas covered include:

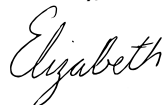
Process Innovations	Alternative Processes	Plant Operations	Quality/Metrology	Systems Integration
<ul style="list-style-type: none"> • Materials • Tooling • Finishing/Cleaning • Machining • Software (CAD/CAM/CAE) • Toolholding/Workholding 	<ul style="list-style-type: none"> • Additive/3D Printing • Lasers • Fastening/Joining • Fabrication • Waterjet • Welding 	<ul style="list-style-type: none"> • Cost Justification • Energy Efficiency • Government Initiatives • Supply Chain • ERP/PLM/MES • Training/Workforce 	<ul style="list-style-type: none"> • Inspection • Measuring • Optical/3D/NDT • Standards • Testing • Vision Systems 	<ul style="list-style-type: none"> • IIoT/Industry 4.0 • Motion Control • Robotics • Automation • Cybersecurity • Connectivity

Real-world case studies on adopting technology amidst workforce challenges, overcoming new design, material, 3D printing challenges, and how to mitigate effects of the supply chain chaos are just a few of the sessions during The IMTS 2022 Conference.

On the following pages you’ll find the daily schedule, including registration information (see pg. 7), followed by detailed information from various presentations taking place throughout the 4-day conference.

I look forward to seeing everyone in Chicago this September!

Sincerely,



Elizabeth Engler Modic
Editor
emodic@gie.net





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MONDAY 9/12

	TRACK A	TRACK B	TRACK C
8:30 - 9:55	REGISTRATION		
10:00 - 10:55	Room W192-A AddUp Sammy Passell, Applications Engineer Phil Jenkins, Applications & Innovation Director <i>Case Study: Fives Landis Corp, and AddUp Work Together to Design and 3D Print a Custom Coolant Nozzle</i> Alternative Processes	Room W192-B Rootstock/BACA Systems Andrew Russo, CIO <i>Making Hard Decisions Quickly in Our Fast-Changing Manufacturing Industry</i> Plant Operations	Room W192-C Caron Engineering Rob Caron, President & CEO <i>Smart Technology Systems: The New Eyes and Ears of Manufacturing</i> Process Innovations
11:00 - 11:55	Room W193-A - Page 12 CGTech Gene Granata, Director of Product Management <i>Facing the Machinist Shortage: Adopting Technology to Fill the Experience Gap and Do More with Less</i> Process Innovations	Room W193-B New Scale Robotics Stefan Friedrich, Product Manager <i>How to Automate Dimensional Gauging on the Production Floor</i> Quality & Metrology	Room W194-A Plex Systems Jerry Foster, Chief Technology Officer <i>The Machines Are Not Out to Get You - Making AI Work for Your Manufacturing Operation</i> Systems Integration
12:00 - 1:10	LUNCH		
1:15 - 2:10	Room W192-A Aligned Vision Scott Blake, President <i>Quality Monitoring of Automated Production Using a Large-FOV Calibrated Imaging System with Laser Guidance</i> Quality & Metrology	Room W192-B - Page 14 Rittal Weston Six, Business Development-Services <i>How To Reduce Cost in Operability with Sustainability in Mind</i> Plant Operations	Room W192-C KY Corp. Eric B. ... Northeast ... Regional Manager <i>On-Site Solvent Recovery to Capture the Savings</i> Process Innovations
2:15 - 3:10	Room W193-A WFL Millturn Technologies GmbH & Co. KG John Kelly, Sales Manager <i>Titanium and Inconel Machining on a Grand Scale</i> Process Innovations	Room W193-B - Page 16 Physik Instrumente Cliff Jolliffe, Head of Automation Market Segment; Matt Price, Technical Manager, Precision Motion/Laser Processing <i>Generating Precise A/B Quadrature Signals from Motion Platforms without Inherent Digital Feedback</i> Systems Integration	Room W194-A - Page 18 LillyWorks Inc. Mark Lilly, President & CEO <i>Solving the Late Problem in High-Mix Manufacturing Environments</i> Plant Operations
3:15 - 4:10	Room W192-A - Page 20 Zeiss Industrial Quality Solutions Dr. Curtis Frederick, Additive Manufacturing Application Specialist <i>Overcoming the Challenges of New Designs, New Materials, and New Printers with X-Ray CT</i> Alternative Processes	Room W192-B - Page 22 Datanomix Greg McHale, Co-Founder & CTO <i>The Need For Next-Gen Production Monitoring for Unattended Operations</i> Systems Integration	Room W192-C Mastercam/CNC Software LLC Stas Mylek, Strategic Partner Program Manager <i>Digitalization of the Manufacturing Floor: Are SMEs Ready for the Next Wave?</i> Process Innovations

*Speakers, topics, times, and rooms are all subject to change.

The IMTS 2022 Conference Pricing

<https://www.imts.com/show/education/IMTS2022.cfm>



DATES & TIME: Monday, Sept. 12 - Thursday, Sept. 15, 2022; 8:00 a.m. - 4:00 p.m.

LOCATION: West Building, Room W192-A, W192-B, W192-C, W193-A, W193-B, W194-A

COST: 1-day: \$295 | 4-day: \$495 | IMTS + Hannover Messe: \$695

REGISTRATION INCLUDES:

- Access to IMTS Conference, 1-day or 4-day passes
- Full access to the IMTS Exhibit Hall September 12-17
- Lunch ticket for day(s) of registered conference

The HANNOVER MESSE USA 2022 Conference

<https://www.imts.com/show/education/HMUSAConference.cfm>



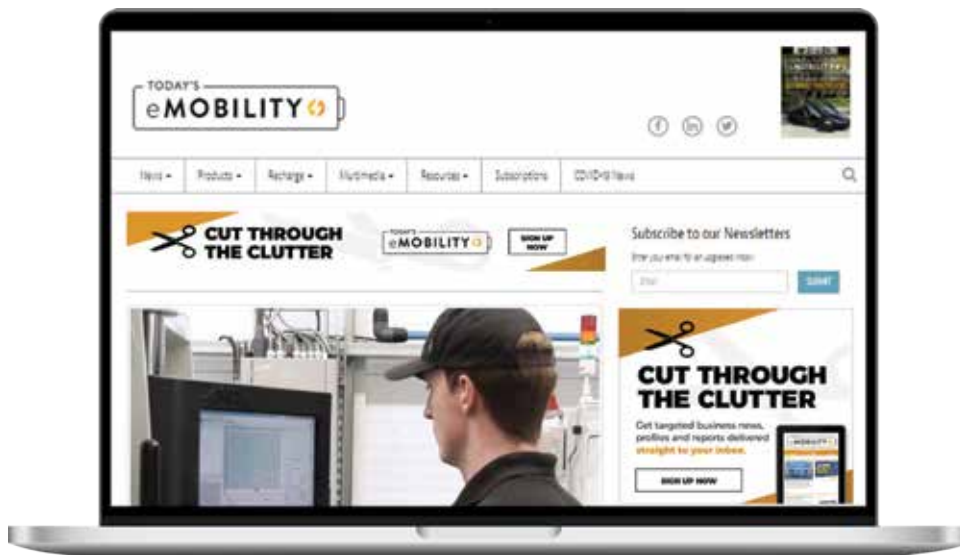
DATE & TIME: Monday, Sept. 12 - Wednesday, Sept. 14, 2022; 8:00 a.m. - 4:00 p.m.

LOCATION: All sessions will be held in the West Building - Level 1 of McCormick Place

COST: 1-day: \$295 | 4-day: \$495 | IMTS + Hannover Messe: \$695



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TUESDAY 9/13

	TRACK A	TRACK B	TRACK C
8:00 - 8:55	REGISTRATION		
9:00 - 9:55	<p>Room W192-A CAPTURE 3D Steve DeRemer, Application Specialist <i>Solving Additive Manufacturing Challenges with Advanced 3D Scanning Alternative Processes</i></p>	<p>Room W192-B - Page 24 Blaser Swisslube Chris Porsch, Sales Director <i>Metalworking Fluids: The Minor-League Player with a Major-League Impact Plant Operations</i></p>	<p>Room W192-C - Page 26 Fagor Automation Harsh Bibra, General Manager <i>Using HTML5 to Attract Fresh Minds into the CNC Industry Process Innovations</i></p>
10:00 - 10:55	<p>Room W193-A - Page 28 Jergens Inc. Jack Rushlander, Technical Sales Manger-East <i>Layout and Planning Techniques for 5-axis Machining Centers Process Innovations</i></p>	<p>Room W193-B SCHUNK Cory Raizer, Business Development Manager - Automated Machine Trending <i>Getting the Most From Your Robot Investment for Machine Tending- Maximize Your ROI on Cobots & Robots Through Faster Developments and Redeployments with Changing Jobs Systems Integration</i></p>	<p>Room W194-A The L.S. Starrett Co. Greg Maisch, Engineering Manager <i>Optical Comparators vs. Multi-Sensor Vision Systems: Practical Considerations for Choosing the Right Metrology System Quality & Metrology</i></p>
11:00 - 11:55	<p>Room W192-A - Page 30 Makino Dave Walton, Director of Engineering <i>Automation Implementation Blueprint Systems Integration</i></p>	<p>Room W192-B Stratasys Fadi Abro, Director of Automotive Business Eric Johnson, Global Manager of Additive Manufacturing, Eaton Research Labs <i>The EV Revolution is Charging Up with Additive Manufacturing Alternative Processes</i></p>	<p>Room W192-C Mazak Corp. Lem Linder, Application Engineer <i>Serialization & Traceability Using MTConnect Systems Integration</i></p>
12:00 - 1:10	LUNCH		
1:15 - 2:10	<p>Room W193-A IMCO Associates Inc. Ruben Mirensky, President <i>Industry 4.0 - The Road to Competitiveness Plant Operations</i></p>	<p>Room W193-B KUKA Robotics Corp. Houssaine Waled, Senior Staff Systems Engineer <i>Understanding Robot Accuracy Process Innovations</i></p>	<p>Room W194-A FARO Technologies Michelle Edwards, a Director of Global AE Training <i>Accelerating Product Development Through Reverse Engineering Quality & Metrology</i></p>
2:15 - 3:10	<p>Room W192-A - Page 32 Murata Machinery USA Jeff Tyl, Fabrication & Aftermarket Sales Manager <i>Automation, Not if, but When Systems Integration</i></p>	<p>Room W192-B - Page 34 ISCAR USA Thomas Raun, Chief Technical Officer <i>100% Utilization: The Cutting Tool Conundrum Process Innovations</i></p>	<p>Room W192-C - Page 36 KINEXON Mehdi Bentanfous, CEO <i>Beyond RTLS: Leveraging Location Data for Industrial Process Automation Plant Operations</i></p>
3:15 - 4:10	<p>Room W193-A Schneeberger Inc. George Blaha, General Manager, Schneeberger Mineralgusstechnik s.r.o. (Cheb Czech Republic) Executive Board Member <i>Mineral Casting: The "Organic" Solution for Eliminating Vibration in Production Machinery for Greater Speed, Precision, and Environmental Protection Alternative Processes</i></p>	<p>Room W193-B WENZEL America Dr. Heiko Wenzel, Chief Digital Officer <i>Process Integrated Metrology - Game Changer in Production? Quality & Metrology</i></p>	<p>Room W194-A Xometry Greg Paulsen, Director - Application Engineering <i>A New Era in Manufacturing: Digital Marketplaces Systems Integration</i></p>

*Speakers, topics, times, and rooms are all subject to change.

Conference Schedule*

WEDNESDAY 9/14

	TRACK A	TRACK B	TRACK C
8:00 - 8:55	REGISTRATION		
9:00 - 9:55	<p>Room W192-A - Page 38 Okuma America Corp. Wade Anderson, Product Specialist Manager and Tech Centers Manager <i>Forget the Cost - It's Time to Think About ROI</i> Plant Operations</p>	<p>Room W192-B GF Machining Solutions Onik Bhattacharyya, Director of Sales (Global) <i>Manufacturing Leans Toward Lasers</i> Alternative Processes</p>	<p>Room W192-C Optical Surface Technology Dr. Ozgur... Product Manager of Optical Surface Technology <i>Optical Surface Topography Measurements in Manufacturing Environment</i> Quality & Metrology</p>
10:00 - 10:55	<p>Room W193-A - Page 40 FASTEMS LLC Nathan Turner, President <i>CNC Machining Automation - Best Practices for Flexibility, Resilience, and Profitability</i> Systems Integration</p>	<p>Room W193-B - Page 42 Masa Tool Inc. Matthew Saccomanno III, CEO <i>Boosting Profits from Swiss-Type Machines by Better Use of the Sub-Spindle</i> Process Innovations</p>	<p>Room W194-A SYSPRO Kevin Bell, VP of Pre-Sales <i>How Lean, Just-in-Time and Technology Can Mitigate the Effects of the Supply Chain Crisis</i> Plant Operations</p>
11:00 - 11:55	<p>Room W192-A - Page 44 Norton Saint Gobain Spencer Artz, Corporate Application Engineer <i>Next Generation in Continuous Generating Grinding of Aerospace, Ice, and EV Gear</i> Process Innovations</p>	<p>Room W192-B Autodesk Richard Stublej, Sr. Technical Consultant <i>Realizing Carbon Balanced Production Through Quality Control</i> Quality & Metrology</p>	<p>Room W192-C DM3D Technology Dr. Bhaskar Dutta, President & COO <i>DED Manufacturing of Large Critical Components: Pushing Boundaries of Metal Additive Manufacturing</i> Alternative Processes</p>
12:00 - 1:10	LUNCH		
1:15 - 2:10	<p>Room W193-A Mitsui Seiki USA Inc. William Malanche, Chief Operating Officer <i>How to Extend the Life and Optimize the Performance of CNC Machinery Assets</i> Plant Operations</p>	<p>Room W193-B - Page 46 Heidenhain Corp. Gisbert Ledvon, Director-Business Development <i>Automation and Monitoring as a Subsequent Technology to Optimize Machine Utilization</i> Process Innovations</p>	<p>Room W194-A - Page 48 Siemens Industry Inc. Tiansu Jing, Product Manager <i>Discover the Benefits of Using the Digital Twin in CNC Machines</i> Systems Integration</p>
2:15 - 3:10	<p>Room W192-A Brighton Science Ian Smith, Sr. Custom Applications & Materials Engineer <i>The New Frontier in Inspection-Surface Intelligence</i> Quality & Metrology</p>	<p>Room W192-B Rick Neff LLC Rick Neff, Consultant to Thermwood Corp. <i>Productive Applications of Large-Scale Additive Manufacturing</i> Alternative Processes</p>	<p>Room W192-C EOS Fabian Alefeld, Senior Manager-Additive Minds Consulting <i>Additive Manufacturing as a Driver of Sustainable Business Models and Applications</i> Process Innovations</p>
3:15 - 4:10	<p>Room W193-A - Page 50 Renishaw Inc. Dan Skulan, General Manager-Industrial Metrology <i>Implementing Intelligent Industrial Automation - A Practical Guide</i> Systems Integration</p>	<p>Room W193-B BIG DAISHOWA & Andretti Autosport John Zaya, Product Specialist; Charlie Mitchell, Manufacturing Engineer <i>Race Team Hits the Mark with Help of Workholding System</i> Process Innovations</p>	<p>Room W194-A Sompo Global Risk Solutions Adam Kopcio, Senior VP Head of Middle Markets and Business <i>Cyber Liability and the Impact on Your Business</i> Plant Operations</p>
3:15 - 4:10			<p>Room W196-C CERATIZIT USA Inc. Mark Blosser, Executive Director of Technology and Solutions\Sales and Applications <i>Additive Manufacturing Takes Tooling Performance to New Levels for Today's Shops</i> Plant Operations</p>

*Speakers, topics, times, and rooms are all subject to change.

THURSDAY 9/15

	TRACK A	TRACK B	TRACK C
8:00 - 8:55	REGISTRATION		
9:00 - 9:55	<p>Room W192-A - Page 52 Norgren Inc. Rachel Short, Managing Director <i>Creating Adaptable Solutions to Improve Workholding Technology Efficiency</i> Process Innovations</p>	<p>Room W192-B 3DEO Inc. Matthew Sand, President <i>Intelligent Layering With 3DEO - Production Metal 3D Printing</i> Alternative Processes</p>	<p>Room W192-C OTC Robotics Jay Judice, VP, Product <i>How Can Autonomous Robots Work For Your Material Handling Plant Operations</i> Plant Operations</p>
10:00 - 10:55	<p>Room W193-A - Page 54 Mitutoyo America Corp. Dr. Jim Salisbury, General Manager- Corporate Metrology <i>Calibration Fundamentals</i> Quality & Metrology</p>	<p>Room W193-B FANUC America Rick Schultz, Aerospace Program Manager <i>Advanced Aerospace Automation Concepts</i> <i>Including Collaborative Robotics</i> Systems Integration</p>	<p>Room W194-A - Page 56 Staubli Robotics Gilles Le Quilleuc, Head of General Industry & Food North America; John Burke, Southeast Regional Sales Manager <i>Washing Market - Cleaning</i> Process & Robotics Process Innovations</p>
11:00 - 11:55	<p>Room W192-A OnRobot US Inc. Kristian Hulgard, General Manager-Americas <i>What Labor Crisis? How Collaborative Palletizing Applications Bring Productivity, Ergonomic, and Quality Boosts to Companies of all Sizes</i> Alternative Processes</p>	<p>Room W192-B TDM Systems Robert Auer, Director Global Business Development <i>TDM Cloud Essentials, The First Comprehensive Cloud-Based Tool Management Solution from TDM Systems - It's Easier than You Think!</i> Process Innovations</p>	<p>Room W192-C - Page 58 4D Technology Dr. Erik Novak, General Manager <i>Vibration-Immune 3D Measurements Enable Production Automation for Precision-Machined Parts</i> Quality & Metrology</p>
12:00 - 1:10	LUNCH		
1:15 - 2:10	<p>Room W193-A YG-1 Jan Andersson, Director-Product Management <i>Breaking Fallacies in Tooling - How it Impacts the Bottom Line</i> Process Innovations</p>	<p>Room W193-B ECI Software Solutions Brian Winters, CIO <i>Cybersecurity - How Mitigating Threats Can Prepare You from Being Attacked</i> Systems Integration</p>	<p>Room W194-A KYOCERA SGS Precision Tools Inc. Akilah Thomas, Training and Occupational Development Specialist <i>The Evolution of Workforce Development</i> Plant Operations</p>
2:15 - 3:10	<p>Room W192-A Phillips Corp. & Autodesk Inc. & Meltio Brian Kristaponis, Chief Technology Officer; Robert Bowerman, Technical Consultant; Brian Matthews, Chief Technology Officer <i>Accessible Hybrid Manufacturing with Autodesk Fusion 360 and Phillips Corp</i> Alternative Processes</p>	<p>Room W192-B - Page 60 AutoForm Engineering USA Inc. Dr. Kidambi Kannan, Technical Specialist <i>Eliminating Scrap in Sheet Metal Stamping Production: In-Line Process Control Anchored in Smart Engineering</i> Process Innovations</p>	<p>Room W192-C Pragma & Hexagon Manufacturing Intelligence Francois Mainguy, President and CEO; Scott Everling, Product and Business Development <i>New-Generation Software Workflow Enables Automated NDT and Metrology</i> Quality & Metrology</p>
3:15 - 4:10	<p>Room W193-A Tooling-U SME Denise Ball, Workforce Development Specialist <i>Attract & Retain to Sustain Manufacturing</i> Plant Operations</p>	<p>Room W193-B Gleason Automation Systems Christian Sterner, General Manager <i>Connected Systems to Deliver Predicted Outcomes</i> Systems Integration</p>	<p>Room W194-A FormAlloy Technologies Inc. Melanie A. Lang, Co-Founder & CEO <i>Data-Driven Process Control for Precision Directed Energy Deposition</i> Process Innovations</p>

*Speakers, topics, times, and rooms are all subject to change.

Monday, 9/12

11:00 to 11:55 a.m. / Room W193-A

Topic Track: Process Innovations

Session Topic: Facing the Machinist Shortage: Adopting Technology to Fill the Experience Gap and Do More with Less

The shortage of experienced manufacturing professionals is an issue manufacturing shops have been facing for years. As the current workforce of NC programmers and machinists gets ready for retirement, there's less and less talent coming in to take their place. While the push to develop additional paths through education and training is underway, what can shops do in the meantime to collect and protect their current machining expertise while meeting increasing demands for speed, quality, and innovation? One solution is adopting advances in technology to develop smarter machining processes.

Huge advancements in manufacturing software have made it easier for shops to verify toolpaths, simulate machine movement to avoid crashes and unexpected behavior, and optimize NC programs and feed rates to ensure cuts are performed without breaking the cutter or causing undue wear – all without requiring NC programmers and machinists to have expert machining experience. The presentation will explore the benefits of using software to establish “smarter” manufacturing processes to enable more quality production with fewer resources.

Gene Granata Director of Product Management CGTech



Gene Granata, director of product management, has been with CGTech since 1992. With more than 30 years of CNC manufacturing experience, Granata is responsible for planning development of CGTech's flagship software product VERICUT, and associated CAD/CAM and Tooling interfaces.

After receiving his Bachelor of Science degree with an emphasis in NC Manufacturing Technology from Northern Illinois University in 1983, his professional career began at Bendix Aerospace (now known as Honeywell Federal Manufacturing & Technologies) as an NC programmer for a variety of CNC lathes, mills, and multi-tasking machines. He then went to work for aerospace companies such as Northrop Aircraft and McDonnell Douglas, working on T-45, F-20, and F-18 fighter projects, as well as B-2 Stealth Bomber and C-17 military transport aircraft.

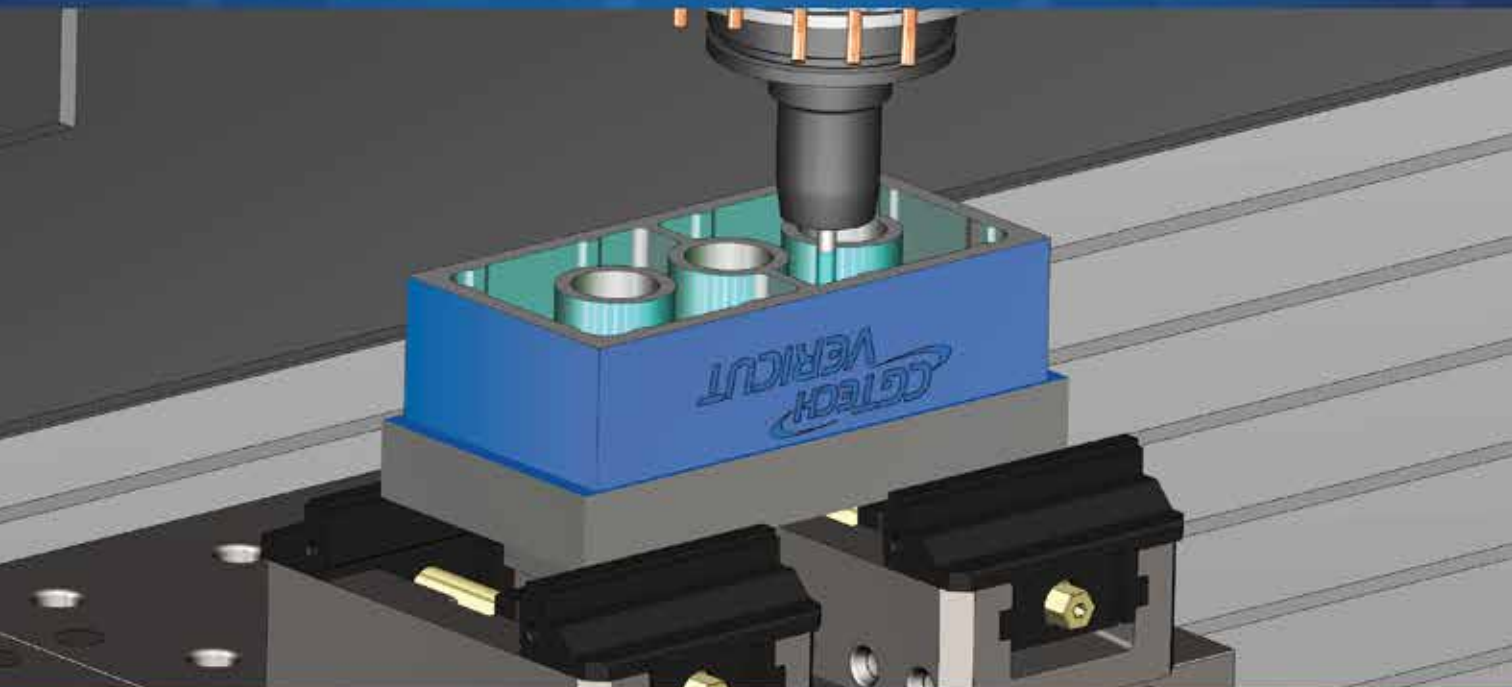
Prior to his role as director of product management, he was VERICUT Project Manager and wrote technical documentation, designed many general-purpose and customized training courses, and provided manufacturing consulting services to hundreds of companies in virtually every industry.



Headquartered in Irvine, California, CGTech specializes in numerical control (NC/CNC) simulation, verification, optimization, and analysis software technology for manufacturing. CGTech was founded in 1988. Since that time, our main software product, VERICUT®, has become the industry standard. With offices worldwide, VERICUT software is used by companies of all sizes, universities/trade schools, and government agencies.

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Monday, 9/12

1:15 to 2:10 a.m. / Room W192-B

Topic Track: Plant Operations

Session Topic: How to Reduce Cost in Operability with Sustainability in Mind

Meeting your environmental goals can be daunting. Lean manufacturing focuses on creating the best bottom line, but a sustainability strategy can create large overhead costs. While these two seem to be in conflict, they lead to the same goal: eliminating the potential for wasted resources. In fact, a robust sustainability strategy can save a manufacturing plant more money long-term despite early costs. Sustainability programs are now part and parcel of maintaining a strategic advantage over competitors and seizing opportunities for increases in market share.

Throughout the last decade, global manufacturers have relied on Industry 4.0 and the Industrial Internet of Things (IIoT) to help them increase efficiency, reduce energy usage, and reduce manufacturing costs via optimized production programs. These programs improve environmental operations and help companies introduce products to market faster and more efficiently.

The move toward a sustainable manufacturing atmosphere is multifaceted, complex, and contains a variety of challenges unique to each manufacturer. Efficient industrial automation processes simplify the transition toward a green production environment and unlock new, innovative opportunities for manufacturers to further modernize and optimize their industrial automation infrastructure.

Join us for an enlightening discussion about why preventative maintenance matters, examples of real-life savings manufacturers have found by focusing on energy efficiency, how to learn if an energy-efficient climate control program could qualify you for a local rebate program, and simple ways to reduce your energy usage and costs.

Weston Six
Business Development Representative
Rittal



Since joining Rittal in 2019, Weston Six has consulted on best practices on energy efficiency, helping customers reduce costs and get the most out of their technology. Through Rittal's energy efficiency inspection program, he assesses customers' needs, both for maintenance and cooling, to find the best solution for their plant. With 10 years of experience in both services and technology, Six provides expert consultation to help customers meet their goals.



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Monday, 9/12

2:15 to 3:10 p.m. / Room W193-B

Topic Track: Systems Integration

Session Topic: Generating Precise A/B Quadrature Signals from Motion Platforms without Inherent Digital Feedback

Digital quadrature encoders have become a standard for precision automation systems used in laser materials processing, additive manufacturing (AM), and test/inspection. In these tools, stage-level integrated encoder technologies provide feedback to external devices for process synchronization from inkjet print boards to line scan cameras. These encoder requirements applied to the core automation systems, have traditionally imposed technical constraints limiting flexibility, performance, and throughput in these tools. We'll discuss how encoder technologies affect process performance while presenting recent work that'll allow the next generation of tools to use absolute encoders, analog encoders, or no encoders while still enabling tool process synchronization with devices that require digital quadrature encoder signals.

Matt Price

**Technical Manager
Physik Instrumente**

Matt Price is a technical manager for PI, working in precision automation technologies for microfabrication and metrology. A physicist with a background in laser materials processing and characterization, he has contributed to the development of motion technologies to advance capability in these fields.



Cliff Jolliffe

**Head of Industrial Automation
Physik Instrumente**

Cliff has a passion for high precision motion systems for manufacturing with lasers. He has been the chair for the British Science and Technical Facilities Council (STFC) assisting research institutes to partner with industrial companies. Using Cliff's three decades of experience in the automation market advocates him to promote and direct Physik Instrumente precision automation capabilities globally.



PI

Physik Instrumente (PI) is a precision positioning technology company. PI has been developing and manufacturing standard and OEM products with piezo or motor drives for more than 40 years, resulting in 200 technology patents. PI is a privately owned company with healthy growth. In addition to four locations in Germany, the PI Group is represented internationally by fifteen sales and service subsidiaries. By acquiring the majority shares in ACS Motion Control, a worldwide developer and manufacturer of modular motion controllers for multi-axis and high-precision drive systems in 2016, PI has made a major step forward in providing complete systems for industrial applications with the highest demand on precision and dynamics.

IMTS 2022 Booth #135952
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Monday, 9/12

2:15 to 3:10 p.m. / Room W194-A

Topic Track: Plant Operations

Session Topic: Solving the Late Problem in High-Mix Manufacturing Environments

Most manufacturers struggle with getting orders to their customers on time. Today's high-mix production environments are simply too dynamic for traditional enterprise resource planning (ERP) programs based on finite capacity. These older systems are unlikely to deliver a plan that can be executed by shopfloor personnel. Even if a workable plan or schedule is created, it's soon obsolete due to the rapid and frequent changes that occur in manufacturing production environments.

Introducing a new approach: The Dynamic Production Method.

Attendees will learn how to use this new method with the information they already have today in their ERP to gain visibility and help production personnel make the right decisions in real time. When deployed in a manufacturing environment, this methodology helps production teams answer critical production questions.

Mark Lilly
CEO and President
LillyWorks Inc.



With decades of experience in enterprise resource planning (ERP) consulting and implementation, Mark Lilly helps manufacturers dramatically improve OTD in high-mix environments. The Lilly family members are long-time innovators in technology and best practices, from launching VISUAL ERP in 1991 to the development of the Dynamic Production Method and Protected Flow Manufacturing platform. Lilly's background in computer science and psychology from Cornell University informs his approach to solving business problems with technology and motivating organizations toward positive, lasting change by bringing teams together to achieve a common goal. Today, Lilly focuses his time on educating manufacturers and their partners about the next evolution beyond traditional production scheduling and materials planning to solve the late problem for good.



LillyWorks is changing the game in solving the persistent problem of missed due dates in high-mix manufacturing so our clients can deliver in less time, on-time, all the time. The company's flagship product is Protected Flow Manufacturing (PFM™) which can be used with any existing ERP or as a standalone scheduling solution. As an evolution beyond traditional ERP scheduling, PFM helps manufacturing teams master on-time-delivery. This proprietary system uses real-time priorities, materials, capacity, and threat level analysis to turn lead times into kept promises. Since 1960, the Lilly family has been dedicated to creating leading-edge manufacturing resource planning (MRP) and ERP solutions that give manufacturing leaders and their teams more freedom. In 1991, founder Dick Lilly launched VISUAL Manufacturing as the world's first software in this sector to offer an intuitive graphical user interface. Today, brothers Mark and Michael Lilly, along with long-time partners David Layne and Scott Filiault, are leading the industry beyond traditional scheduling and MRP tools and making it possible to solve the late problem for good!

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Monday, 9/12

3:15 to 4:10 p.m. / Room W192-A

Topic Track: Alternative Processes

Session Topic: Overcoming the Challenges of New Designs, New Materials, and New Printers with X-Ray CT

This presentation addresses the successes and failures of 3D printing a topology optimized heat exchanger with a new alloy, Aluminum F357, that hadn't been printed on a Xline 1000 printer before this project. Using X-ray computer tomography (CT), new print parameters were developed in one build and the redesigned heat exchangers printed in the next. Some background will be given on X-ray CT and the parameter selection method created and the positives/negatives of this method. Upon inspection of the printed parts, our workflow generated unexpected gaps in the parts. CT scanning the printed parts allowed us to determine the size of the internal gap and adjust the models accordingly. Updating a set of complicated heat exchanger models while changing the material and the 3D printer can be a daunting task. However, X-ray CT can give you confidence when selecting new print parameters and in inspecting printed parts. X-ray CT allows for rapid feedback when printing a design of experiments (DOE) of parameters and can inspect hard to reach regions such as internal channels. This presentation will showcase the successes and setbacks we're able to overcome while improving a set of heat exchangers.

Curtis Frederick

**Additive
Manufacturing
Application Specialist**

**Zeiss Industrial
Metrology LLC**



Curtis Frederick is an additive manufacturing application scientist with Carl Zeiss and is positioned at the manufacturing demonstration facility within Oak Ridge National Laboratory (ORNL) to support the cooperative research and development agreement (CRADA) between ZEISS and ORNL. Frederick has researched parameter development for grain control using electron beam additive manufacturing of Ni-based superalloys during his graduate studies. He has also worked on alloy development of high temperature Al-based alloys for laser powder bed fusion at the production scale. He's currently developing workflows for linking defects in printed parts to properties of the powder feedstock for multiple powder bed additive manufacturing processes. Frederick received his Ph.D. in material science and engineering at the University of Tennessee, Knoxville in 2018.



ZEISS Industrial Metrology is a leader in computer numerical control (CNC) coordinate measuring machines and complete solutions for multidimensional metrology in the metrology lab and production. The company is a recognized partner to the automotive industry and its suppliers. 2,400 employees from manufacturing sites in four countries and more than 100 sales and service centers supply customers around the world.

The offering encompasses bridge-type, horizontal-arm, and inline measuring machines, as well as form, contour, and surface measuring machines. All relevant modules, such as controllers, software, measuring systems, and sensors are developed and manufactured in-house. Recent new developments include a system to measure extremely small parts and computed tomography for industrial quality assurance. ZEISS DuraMax, a small CNC measuring machine, allows a particularly cost-effective entry into the ZEISS scanning world. With its optical and tactile measuring systems, ZEISS added image processing to the application spectrum of coordinate measuring technology.

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Main Booth: East Building, Level 3 — 135502 — Quality Assurance

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Monday, 9/12

3:15 to 4:10 p.m. / Room W192-B

Topic Track: Systems Integration

Session Topic: The Need for Next-Gen Production Monitoring for Unattended Operations

Unattended operations are the holy grail for today's precision manufacturers. Running computer numerical control (CNC) machines without needing additional workers means more output for the factory, even when the lights are out! The downside to unattended operations is things can happen when no one's around, and without an observer, it becomes an exercise in sleuthing to determine the cause for issues and stoppages. Unfortunately, first-generation production monitoring requires operator input to provide context around machine downtime and interruptions in production. When operators are required to enter reason codes into a tablet or computer to deliver understanding about machine states, manufacturers implementing unattended shifts are blind to a lot of issues that happen when nobody's watching the machines.

Next-generation production monitoring systems offer the perfect solution to factories looking to implement or expand unattended operations. By simply connecting to CNC machines and using the data directly from the machine controllers, next-gen production monitoring solutions use machine learning to make sense of data in real time. Now, manufacturers can see what happened in an overnight, unattended shift for every part produced and downtime or stoppage that occurred.

In this session, attendees will learn how next-gen production monitoring delivers insights into unattended operations, including the ability to monitor production in real time.

Gred McHale

**Founder and CTO
Datanomix**



Gred McHale founded Datanomix on the premise that the 4th industrial revolution would require turnkey products that integrate seamlessly with how manufacturers work today. He brings enterprise data skills to a market ripe for innovation. McHale has held engineering leadership positions at several venture-backed companies and is a graduate of Worcester Polytechnic Institute.



Founded in 2016 in New Hampshire, Datanomix offers automated production intelligence for precision manufacturers. When we started Datanomix, we met with dozens of manufacturers who were trying to use data from their equipment to optimize operations. Not one company was getting what they wanted out of their existing monitoring systems - information was either too complicated and cumbersome, or too simple and not insightful. To add insult to injury, the user interfaces on those systems made it look like those companies just didn't understand manufacturers.

IMTS 2022 Booth #121607
<https://datanomix.io>



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**CHECK OUT THIS
THINK PIECE**

The Fatal Flaws of
First-Generation
Monitoring Systems



Tuesday, 9/13

9:00 to 9:55 a.m. / Room W192-B

Topic Track: Plant Operations

Session Topic: Metalworking Fluids: The Minor-League Player with a Major-League Impact

The right metalworking fluid does a lot more than you think, and it's an often-overlooked strategic tool for manufacturers. The cost of any metalworking fluid is a small fraction of the total investment into a manufacturing process. At the same time, it has an oversized impact because it touches everything in the shop, from tools to machines, parts, and people. The idea that this minor player – around 0.5% of the production cost – influences the success of the other 99.5% is called the “leverage effect” of metalworking fluids. It means the right metalworking fluid does a lot more than you think, and it's an often-overlooked strategic tool for manufacturers.

Operations and maintenance managers should join this session and will take away improvement ideas with measurable ROI. You will learn:

1. The impact of the right metalworking fluid on major cost centers in the shop
2. How to use coolant to extend tool life, increase cutting speeds, and gain process stability
3. Examples of improvement goals from other shops, from productivity to health and safety
4. How to reduce hours on unpleasant maintenance tasks and protect your valuable CNC machines

Chris Porsch

Midwest and Western Regions Sales Director

Blaser Swissslube



Chris Porsch is the sales director for the Midwest and Western regions.

He has a background in Chemistry and a Bachelor's degree in Business. He developed deep knowledge of metalworking fluids and their applications over the past 8 years. Porsch is driven to share his expertise and help Blaser Swissslube customers improve processes and reduce manufacturing costs every day.



For more than eight decades now, Blaser Swissslube has been reputed for dependable first-class products that are human-compatible and environment-considerate. Our customers not only want cutting fluids, but also need a competent partner to help optimize their machining processes. With our committed team, we provide this partnership. More than 80 specialists at our headquarters R&D and technology center are constantly developing better solutions for tomorrow including innovations such as DNA analysis of cutting fluids and product trials on the latest CNC centers and machine tools.

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Retired Sales Manager
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Tuesday, 9/13

9:00 to 9:55 a.m. / Room W192-C

Topic Track: Process Innovations

Session Topic: Using HTML5 to Attract Fresh Minds into the CNC Industry

Fagor's new HTML5-based user interface for computer numerical control (CNC) was designed for users to customize their machine controls by making them easier to use, more secure, and better suited to take full advantage of industry 4.0 functionalities. However, a major benefit of this user interface is its solution to the skilled labor shortage the manufacturing industry faces today. This presentation breaks down how the interface was designed for the younger workforce of web designers and software programmers to get involved with the world of CNC machining.

Harsh Bibra

General Manager

Fagor Automation



Harsh Bibra is the general manager of Fagor Automation Corp. NA, a world leader in the manufacturing of CNC control automation products. With a degree in electrical and electronics engineering and a background within the engineering department, Harsh has been employed within the CNC machine tool automation sector for 35 years and actively employed with Fagor Automation for 26 years, with the last 16 years as the general manager. With a strong knowledge in technical management, Bibra has successfully driven complex engineering projects and sales channel management on an international level during his career.



Fagor Automation has vast experience in the development and manufacturing of products for machine automation and control. We offer solutions tailored to the needs of our customers, from developing software to the versatility of our production process. Historically, we have focused our efforts on the machine-tool sector. We have a broad technical and sales network spread out in more than 50 countries through our branch offices and distributors.

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CNC SYSTEMS - SERVO DRIVES & MOTORS - FEEDBACK SYSTEMS

Tuesday, 9/13

10:00 to 10:55 a.m. / Room W193-A

Topic Track: Process Innovations

Session Topic: Layout and Planning Techniques for 5-Axis Machining Centers

Jack Rushlander will present an in-depth approach on developing a 5-axis machining plan, focusing on maximizing machine capacity and achieving the fastest return on investment (ROI) possible. Attendees will be taken through a complete planning process in SolidWorks beginning with raw material and ending with a finished part.

Jack Rushlander

Eastern Technical Manager

Jergens Inc.

Jack Rushlander is the eastern technical manager of Jergens Inc. He has 40 years of experience in CNC manufacturing and programming and is proficient with user macro and probing. Rushlander is a former guest speaker at the 1996 IMTS Conference.



Since our founding, Jergens Inc. has grown to comprise 3 distinct business units: Workholding Solutions, Lifting Solutions, and Specialty Fasteners. Building on its reputation of uncompromising quality standards, Jergens is committed to helping its customers achieve leaner, more profitable manufacturing, and continues to add products and engineered solutions for an integrated approach to "Manufacturing Efficiency." Today, you'll find our tooling components, fasteners, and hoist rings at work in just about every industry on every continent. Our innovative engineered solutions like the patented Ball Lock® Mounting System have changed the way manufacturers worldwide think about productivity.

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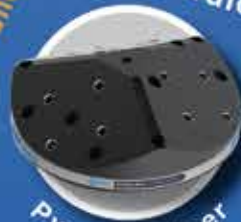
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Tuesday, 9/13

11:00 to 11:55 a.m. / Room W192-A

Topic Track: Systems Integration

Session Topic: Automation Implementation Blueprint

Successful implementation of manufacturing automation projects starts with a clear understanding of desired goals, objectives, requirements, and potential short-term and long-term challenges. As with any significant investment, including automation, conducting discovery is critical to defining the scope of a project and identifying solution[s] that'll be within budget, produced and installed on schedule, and have the greatest return on investment [ROI]. Automation solutions are best when scalable and manageable and have defined operator functions, part processing requirements, and operating environments. Purchasing an automation system with monitoring and feedback functionality will support long-term goals and continuous improvement efforts.

Dave Walton, director of engineering at Makino, has the expertise to help you make the discovery process easier and less daunting. Join him for a walkthrough of an automation blueprint developed over decades of successful implementations. Learn more about essential elements of automation and available tools and solutions.

Dave Walton

**Director of
Engineering
Makino**



Dave Walton is the director of engineering operations at Makino Inc., Mason, Ohio. He's been with Makino for 25 years, working in the areas of factory automation and integrating automation with the Makino machine platform, and later managing the engineering group responsible for executing the Makino automation programs. Walton's total experience in factory automation spans more than 40 years, including stints with General Motors [GM] and GE Aviation prior to his current employment by Makino.



The Makino commitment to customers starts with work in metal-cutting and manufacturing technology with horizontal machining centers, vertical machining centers, wire and ram EDM, and graphite machining centers. Helping customers make what matters also means Makino is both a software company and an engineering services company. A service company and a financing company. A turnkey engineering company and an integration services company. An automation systems company and a machine tool supply company. A training company and a process technology company. Makino is the one company you need to machine parts more accurately, productively, and at a lower cost per part. The partner you need to build and sustain a metal-cutting business that thrives by making the best for the customers that matter most.

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Booth #338136
SEPTEMBER 12 - 17

Tuesday, 9/13

2:15 to 3:10 p.m. / Room W192-A

Topic Track: Systems Integration

Session Topic: Automation, Not If, But When

The level of automation shops select ultimately dictates the degree of integration amongst their machining or turning processes. Do you generally follow the path of reacting to market conditions or proactively design your route with automation at your business's core? This presentation will discuss the pros and cons of various levels of turning automation from adding robots to existing lathes to integrated turnkey gantry-driven systems – and everything in between. It isn't "IF" automation should be part of your strategy. The real question is "WHEN" do you make it part of your project.

Jeff Tyl

Sales Manager

**Murata Machinery
USA Inc.**



Jeff Tyl is an experienced sales manager with a demonstrated history of working in the mining & metals industry. He is skilled in AutoCAD, Negotiation, Steel Structures, Fabricated Component Sales, Capital Equipment, and managing a national sales team.



Murata Machinery USA Inc. is a subsidiary of Murata Machinery Ltd., a world leader in machine tool technology, automated material handling systems, clean room automation, and textile machinery. Established in 1935, Murata Machinery Ltd. is the sole manufacturer of the Muratec brand, which is synonymous with industrial automation and reliability across our extensive product line. Murata Machinery USA Inc. provides globally advanced solutions, tailored to the needs of the North American manufacturer. We strive to expand the boundaries of technological advancement, provide meaningful products that enrich the lives of our customers, bring prosperity to each of our employees, and lead society to a better tomorrow.

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Tuesday, 9/13

2:15 to 3:10 p.m. / Room W192-B

Topic Track: Process Innovations

Session Topic: 100% Utilization:
The Cutting Tool Conundrum

Underutilization stems from a variety of reasons, ranging from simply being uninformed or unaware, to misapplication while attempting to leverage existing cutting tools. The biggest area for improvement is the optimization of cutting tools by paying closer attention to the various other manufacturing technologies on hand. Machine tool capabilities, materials being machined, and other manufacturing technologies such as CAM programming abilities, high-pressure coolant capability, fixturing, small spindles (such as driven tools), etc. should all be considered and leveraged. No matter the reason, even the smallest of companies now have tools and technology to assist in making better cutting tool choices while considering the manufacturing technologies.

Much has changed recently in the world of manufacturing, and this is no different for cutting tool production. For example, 3D printing is used to produce indexable cutting tools with coolant ports directly to the insert that couldn't have been effectively produced using traditional methods. The result is cutting tools that last longer and improve quality.

This session focuses on the typical reasons for underutilization of cutting tools, pointing to solutions companies can employ to ensure they're maximizing their investments.

Tom Raun

**Chief Technical
Officer**

ISCAR



Tom Raun has more than 30 years of experience in the manufacturing industry. He started his manufacturing career in 1991 and spent the next 12 years as a CNC machinist and CAM programmer for companies within the die & mold industry. In 2003, he joined ISCAR as a national product manager focused on die & mold industry companies. He has served in multiple roles through nearly 19 years with ISCAR, consistently engaging with manufacturing companies throughout the USA to improve CNC machining. Raun currently serves as chief technical officer, a role requiring both technical and marketing-related skills to meet the needs of the many industries served by ISCAR including energy, aerospace, medical, automotive, and heavy equipment. He's achieved the highest qualification in Lean Six Sigma, a methodology for improving efficiency and effectiveness throughout an organization. Raun also completed coursework through Villanova University in Lean & Six Sigma, Strategic Organizational Leadership, and Finance & Accounting for Non-Financial Managers.



ISCAR is a producer of cutting tools for metalworking, including turning, grooving, milling, hole making, boring and threading tools. Founded in 1952 by Stef Wertheimer, ISCAR has grown from its origins as a small blades factory to what is recognized today as one of the world's leading manufacturers of metalworking tools. Based in purpose-built R&D and manufacturing facilities spread over a scenic campus, ISCAR's teams of engineering and product specialists combine years of technical experience with deep industry knowledge to develop efficient, practical, and economical cutting solutions for customers all over the world.

IMTS 2022 Booth #431522
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Tuesday, 9/13

2:15 to 3:10 p.m. / Room W192-C

Topic Track: Plant Operations

Session Topic: Beyond RTLS: Leveraging Location Data for Industrial Process Automation

While industrial companies have digitized a significant portion of their machine parks, many are losing out on a valuable pool of information – location data of moving assets along the supply chain. Location-based process automation (LPA) software provides a comprehensive digital twin of moving things that grants manufacturers unprecedented information and visibility of the location and status of assets and processes. This talk highlights how to leverage location data from sources such as BLE, UWB, GPS, and more, to realize unlimited and scalable process automation opportunities via LPA; use cases such as search and find, material flow automation, container management, automated tool control, and more can be easily set up directly on the OT level via no-code/low-code events and triggers.

Mehdi Bentanfous

CEO

KINEXON Inc.



Mehdi Bentanfous is the CEO of KINEXON Inc. Before joining KINEXON, he held senior positions in consulting (BCG), private equity (Waterland Private Equity), and senior management. He is responsible for global business development as well as sales and marketing of the industrial division. Bentanfous studied economics and engineering at the Karlsruhe Institute of Technology (KIT).

KINEXON

KINEXON Inc. is a global technology leader for location-based process automation (LPA) software and connected devices. KINEXON Industries implements real-time IoT solutions that leverage data from location technologies such as BLE, UWB, or GPS to capture, analyze, and automate manufacturing and logistics processes. Clients who automate and future-proof their operations with KINEXON include industry leaders such as ASM, BMW, and Continental. The company has received numerous awards for its outstanding solutions, including Technology Pioneer of the World Economic Forum.

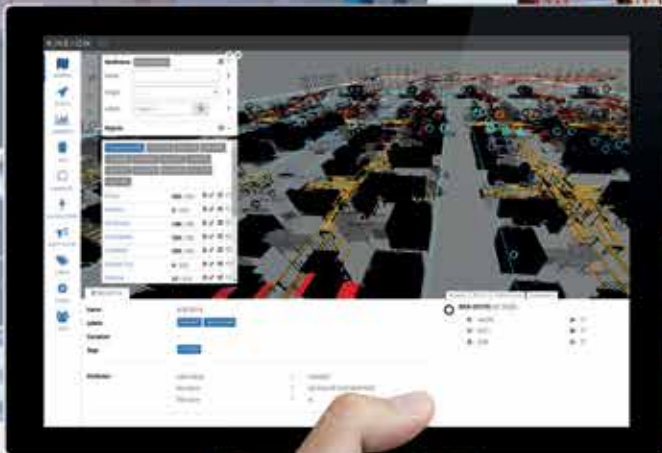
IMTS 2022 Booth #134968

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Missing something?

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Wednesday, 9/14

9:00 to 9:55 a.m. / Room W192-A

Topic Track: Plant Operations

Session Topic: Forget the Cost – It's Time to Think About ROI

Purchasing a machine tool is no small decision – it's one that requires an evaluation beyond the initial machine tool purchase price. On the surface, this evaluation can seem like a daunting task, but Wade Anderson and the Okuma team have taken the guesswork out of this process by developing a return on investment (ROI) calculator, which includes key criteria to be considered by shops of all sizes. Using the calculation method, shop owners and operators can calculate metrics such as total profit per job, part cycle time, cost per part, margin levels, and more. As a bonus, session attendees receive access to a free ROI calculator, making it easy to choose the right investment for your shop.

Wade Anderson

**Product Specialist Manager & Tech Center Manager
Okuma America Corp.**



Wade Anderson is a machinist who started programming machine tools in 1992. His early years were spent machining large, heavy equipment components. He became an applications engineer for a machine tool builder, where he spent 11 years developing super abrasive aerospace and medical processes with an emphasis on 5-axis grinding. Anderson did a lot of 5-axis programming and machine tool troubleshooting – even building machine tools from the ground up. He joined Okuma America Corp. in 2005 as an applications engineer and moved from there to inside sales, sales engineer, and regional manager. He currently serves as product specialist manager and tech centers manager, where his diverse background enables him to help Okuma's distributors and end users.



Okuma America Corp. is the U.S. based affiliate of Okuma Corp. founded in 1898 in Nagoya, Japan. Okuma is known for its technology leadership, manufacturing, product quality, and dedication to customer service. Okuma products are used in the automotive, aerospace and defense, construction and farming equipment, oil and energy, medical, mold and die, and fluid power industries. Machines include vertical and horizontal machining centers, lathes, double column machining centers, grinders, and wheel machines that offer users high throughput, high accuracy, and reliable solutions to production machining operations.

IMTS 2022 Booth #215209 / #338500
<https://www.okuma.com>

FORGET THE COST — IT'S TIME TO THINK ABOUT ROI

WED., SEPT. 14TH | 9:00 AM | ROOM W192-A

Purchasing a machine tool is no small decision — it's one that requires an evaluation beyond the initial price tag. In this session, join Wade Anderson of Okuma America Corporation to explore important factors that influence a machine tool's total cost of ownership and true ROI.

Attendees will receive access to a free machine tool ROI calculator.

ADAPT TOGETHER.



SPEAKER

WADE ANDERSON

PRODUCT SPECIALIST
SALES MANAGER

Starting as a machine tool programmer in 1992, Wade focused on 5-axis grinding, programming, and troubleshooting. He joined Okuma America Corporation in 2005 as an Applications Engineer and has advanced to his current role. Wade's expertise and vast knowledge help Okuma's distributors and customers overcome manufacturing challenges.



Wednesday, 9/14

9:00 to 9:55 a.m. / Room W193-A

Topic Track: Systems Integration

Session Topic: CNC Machining Automation- Best Practices for Flexibility, Resilience, and Profitability

Today's manufacturing operations are complex with increasing product variants, changes in demand, and lead time requirements. As computer numerical control (CNC) machining evolves toward done-in-one processes, supportive device and data system integrations become more common, the necessity for smart operations planning is important. Compounding constant conditions are the sustainability and skilled labor challenges. Establishing a production environment that's resilient and flexible is the goal, but what are the best ways to achieve that? How does a manufacturer build in flexibility, yet also profitability? The short answer: with the proper tools and mindset. Nathan Turner will present field-proven ways to produce small, high-mix batches economically by combining the efficiencies of physical movement, process integration, production planning, and employee engagement.

Participants will learn:

- The three building blocks for economical batch manufacturing: automating physical movements, production planning, and process integration
- How to automate multi-functional machine tools and integrate secondary operations such as finishing, washing, and metrology
- The emerging and exciting automation technologies, including AGVs, 3D printing, and 5G connectivity
- How factory automation helps attract and keep talented employees

Nathan Turner

President

Fastems LLC



Nathan Turner, president of Fastems LLC, has more than 30 years of experience in automation technologies. Prior to joining Fastems, he held leadership roles at Rockwell Automation, including director of business development; director of integrated architecture - EMEA [Europe, the Middle East, and Africa]; and director of product development. Turner also served Beijer Electronics, Miller Electric, Automation Inc., Mitsubishi Electric, and Yaskawa America. Turner holds a BSME degree in Mechanical Engineering at Northwestern University.



Fastems supplies automation and digitalization solutions for high-mix-low-volume CNC manufacturing. We're an open integrator and a family-owned business with 40 years of automation experience, more than 4500 installations, and main markets in Europe, North America, and Asia. Fastems' main application fields are pallet and robotic automation - always equipped with our industry-leading production planning and execution software MMS. We also have solutions for automating the production and resource planning of stand-alone machine tools. We support our systems with a wide range of services. Read more at [fastems.com](https://www.fastems.com).

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Wednesday, 9/14

10:00 to 10:55 a.m. / Room W193-B

Topic Track: Process Innovations

Session Topic: Boosting Profits from Swiss-Type Machines by Better Use of the Sub-Spindle

Swiss-type CNC turning centers are gaining popularity as the parts they produce trend toward higher precision and micro-sized features. To be competitive, smart use of the machine's full capabilities is a big advantage. Achieving lights-out production and minimizing machine cycle times are key tactical objectives.

Join Matt Saccomanno, co-founder and CEO of Masa Tool, as he explains advanced workholding techniques that change the scope of what's possible on a Swiss-type machine [also known as a sliding head or guide bushing machine]. Balancing the main- and sub-spindle cycle times, achieving reliable untended production [lights out], and reducing scrap and down time are the focus of this informative and interactive presentation. Much of this material is also applicable to other types of machining centers, especially when making small parts. Bring your real-world problem parts to the session for a strategy discussion with Saccomanno.

The session is beneficial for machinists, CNC programmers, manufacturing engineers, tool crib personnel, and hands-on managers. This is a presentation of new and advanced techniques for gaining productivity from Swiss-type CNC machines, with emphasis on maximizing use of the machine's counter-spindle [sub-spindle]. Essentially a fully capable machine within a machine, the sub-spindle is rarely used at more than 20% efficiency, which is a huge waste of productive capacity. Most of the roadblocks to increased usage stem from limitations of traditional workholding. The presentation is loaded with real-life examples and practical do-right-now techniques.

Matt Saccomanno

CEO

Masa Tool



Matt Saccomanno has more than four decades of experience in Swiss-type machining and related fields of product design and engineering. Working as a production operator, setup machinist, manufacturing engineer, product design consultant, inventor, and company founder, he's met challenges from every direction in the field of precision manufacturing.



With deep roots in the Swiss-type screw machine industry, Masa Tool Inc. was founded in Oceanside California with the mission of bringing the Microconic System to the world. This revolutionary workholding system consists of the Microconic "cartridge" and "collet." It was invented to solve the problems created by traditional long nose collets commonly used in the sub-spindle of screw machines for over 100 years. As screw machines evolved from mechanical cams in the late 1900s to today's CNC controls, the complexity of parts being made increased dramatically. Making these modern micro precision parts complete on the machine without additional secondary operations became critical to remain competitive. Using the machine's sub-spindle to complete the part is a must. As the demands for precision and complexity increase, the traditional long-nose collet has many limitations that can frustrate the machinist trying to get the most out of the machine. We created the Microconic system to overcome these limitations of conventional collets. The result is superior rigidity, accuracy, over-grip capability, clamping force control, and long-run stability. We at Masa built our company from the ground up to ensure that everything in our catalog is available to ship within 2 days. Every size, every type. We currently offer any size from 0.2mm to 10mm diameter (0.008" to 0.394").

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 **IMTS2022 Booth 432163**

Wednesday, 9/14

11:00 to 11:55 a.m. / Room W192-A

Topic Track: Process Innovations

Session Topic: Next Generation in Continuous Generating Grinding of Aerospace, Ice, and EV Gear

Continuous generating gear grinding is one of the most demanding grinding applications in the automotive and aerospace industries. To improve gear efficiency, gear life, and noise levels, gear profile tolerances and surface finish requirements are becoming more stringent. This is especially true for electric vehicle (EV) gears, which typically require lower noise characteristics than traditional automotive gears.

These new quality requirements must be maintained without sacrificing cycle time, and without inducing grinding burn. One of the biggest factors to achieving these goals is a grinding wheel capable of producing low grinding force and low grinding temperatures, while minimizing the wear of the grinding wheel. The toughness and sharpness of the abrasive, porosity, and strength of the bond, and interaction between the bond and workpiece are key.

A new vitrified wheel matrix has been developed specifically for gear grinding, significantly reducing the friction generated between the bond and the workpiece while maintaining superior form holding at high removal rates. This new bond paired with the newest ceramic abrasive results in a free cutting grinding wheel that exceeds all the requirements necessary to create quiet and long-lasting gears.

Spencer Artz

Grinding Application Engineer

Norton | Saint-Gobain



Spencer Artz is a Norton | Saint-Gobain Abrasives grinding application engineer with eight years of experience in high-precision automotive grinding applications including camshaft, crankshaft, continuous variable transmission, and gear grinding.



We offer powerful, precise and user-friendly solutions for every market and for every step of the abrasives process, enabling our customers to cut, shape, and finish all materials in the most complex and challenging applications. By working closely with end-users and grinding expert partners, we design and provide customized solutions to secure the best option for performance, cost, and safety. With more than 130 years of experience and more than 10,000 passionate employees, we are proud to serve our customers through our network of 60 facilities, in almost 30 countries across all continents.

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Mounted Wheels



Flute Grinding



Creepfeed

Wednesday, 9/14

1:15 to 2:10 p.m. / Room W193-B

Topic Track: Process Innovations

Session Topic: Automation and Monitoring as a Subsequent Technology to Optimize Machine Utilization

We'll discuss new computer numerical controls (CNC) and process monitoring technology, focusing on the digital twin with dynamic collision monitoring and machine component monitoring with overall process monitoring. Attendees will learn how to make the digital shop floor a reality using the latest CNC motion control technology and the related software and hardware components in conjunction with modern 5-axis machining centers. We'll discuss important process steps and break them down into small bite size sections, from program preparation to part setup and in process monitoring. The presentation will conclude with an explanation on how the overall process monitoring can help improve process reliability and keep the overall machine usability rate high.

Gisbert Ledvon

Director of Business Development Machine Tool

Heidenhain Corporation

Gisbert Ledvon is the director of business development, machine tool for Heidenhain Corp. in North America.

With more than 25 years of extensive corporate industrial machine business experience, Ledvon is responsible for growing the CNC control and the digital manufacturing solutions side of the Heidenhain business in this region. Prior to joining Heidenhain, Ledvon served as the director of business development and the applications manager for GF Machining Solutions (formerly AgieCharmilles). He is a regular contributor to technical articles in key trade magazines and has contributed several chapters about "Electrical Discharge machining Technology" (EDM) for the McGraw-Hill Manufacturing Engineering Handbook, published in 2004 and 2016.



HEIDENHAIN

HEIDENHAIN develops and manufactures linear and angle encoders, rotary encoders, digital readouts, length gauges and numerical controls for demanding positioning tasks. HEIDENHAIN products are used primarily in high-precision machine tools as well as in plants for the production and processing of electronic components.

Our comprehensive product program offers solutions for all applications in which the highest possible accuracy, reliable reproducibility and repeatability, safe process management, high machine dynamics, simple-operation and of course maximum efficiency are required.

Our products are therefore used primarily in high-precision machine tools, in plants for the production and processing of electronic components as well as in automated systems and machines. In addition, we supply our products to manufacturers of elevators, medical technology and others.

With our extensive experience and know-how in the development and manufacture of measuring devices and numerical controls, we create the groundwork for the automation of tomorrow's plants and production machines.

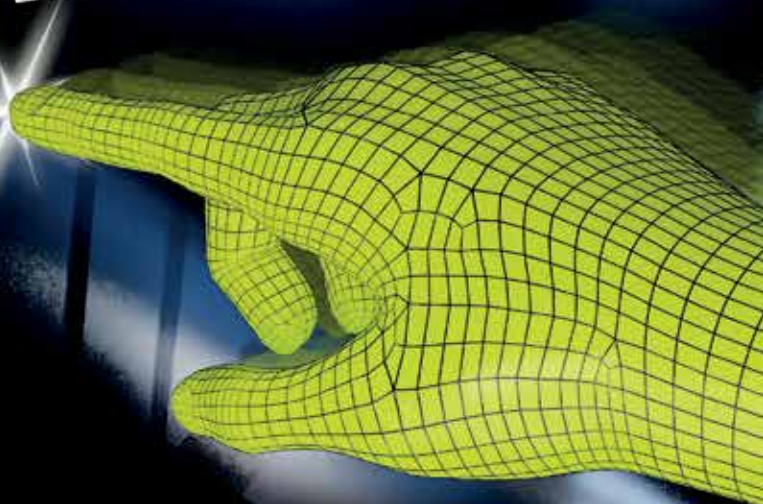
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September 12-17, Booth #339449

HEIDENHAIN CORPORATION
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Wednesday, 9/14

1:15 to 2:10 p.m. / Room W194-A

Topic Track: Systems Integration

Session Topic: Discover the Benefits of Using the Digital Twin in CNC Machines

Manufacturing is changing faster than ever before. CNC technology has developed dramatically in the past decades, extremely extending the machine's cutting efficiency. Now manufacturers are stepping into the new era of productivity improvement with digital twin technology. During this presentation, we'll discuss how the digital twin can help a machine builder shorten their machine's product lifecycle management (PLM) cycle by moving processes out of the critical path; how the digital twin can improve communication between machine builders and end-customers; and how digital twin technology can help end-users increase their manufacturing productivity and accelerate business growth.

Tiansu Jing

**Product Manager
Siemens Industry**



Tiansu Jing is the product manager of SINUMERIK CNC systems in the U.S. at Siemens Industry Inc. He has 14 years of experience in CNC applications, development, and marketing. Jing is currently focusing on digitalization of machine tools.

SIEMENS

Siemens is a global innovator focusing on digitalization, electrification, and automation for the process and manufacturing industries, and is a leader in power generation and distribution, intelligent infrastructure, and distributed energy systems. For nearly 175 years, the company has developed technologies that support multiple American industries including manufacturing, energy, healthcare, and infrastructure.

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SIEMENS

Wednesday, 9/14

3:15 to 4:10 p.m. / Room W193-A

Topic Track: Systems Integration

Session Topic: Implementing Intelligent Industrial Automation A Practical Guide

For years, modern manufacturing deployed robots and other forms of automation to reduce the need for manual operations and increase throughput. Driven by increasing shortages of skilled labor and competitive pressures, it's no longer enough to only automate manual tasks. Intelligent industrial automation provides the real-time decision making that'll drive productivity, profitability, and manufacturing flexibility. Join Renishaw as we explore the current state of advanced manufacturing and learn of technologies that can be deployed to drive intelligent automation.

Learn practical steps to:

- Establish a stable automated process
- Obtain accurate, actionable data throughout the manufacturing process (Industry 4.0)
- Deploy real time process control (smart manufacturing)
- Ensure quality through integrated metrology tools

Dan Skulan
General Manager
Renishaw Inc.



Dan Skulan helps companies increase production throughput, maximize flexibility, and ensure optimal part quality in precision metal manufacturing using computer numerical control (CNC) and additive technologies. Backed by a global team of industrial metrologists, he works consultatively with companies who wish to achieve higher levels of productivity while reducing cost. Skulan holds degrees in electronics technology, industrial manufacturing, and marketing and has more than 35 years practical experience with manufacturing process evaluation, design, and automated process control.

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Renishaw is a global leader in developing technology that supports manufacturing process control. The company's innovative products significantly advance its customers' operational performance – from improving manufacturing efficiencies and raising product quality, to maximizing research capabilities and improving the efficacy of medical procedures. A world leader in metrology systems, Renishaw also offers an advanced range of calibration, measurement, positioning, and inspection solutions. Specified by leading OEMs around the world, Renishaw encoders, calibration, and measurement systems enable superior process control, even down to nanometer and picometer levels. Renishaw products are used for applications as diverse as machine tool automation, coordinate measurement, additive manufacturing, gaging, Raman spectroscopy, machine calibration, position feedback, CAD/CAM, dentistry, shape memory alloys, large-scale surveying, stereotactic neurosurgery, and medical diagnostics. Renishaw aims to be a long-term partner in these areas, offering superior products that meet customers' needs today and into the future, backed up by responsive, expert technical and commercial support.

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Thursday, 9/15

9:00 to 9:55 a.m. / Room W192-A

Topic Track: Process Innovations

Session Topic: Creating Adaptable Solutions to Improve Workholding Technology Efficiency

The COVID-19 pandemic and the pressure it has placed on supply chains, hiring needs, and skills training has only exacerbated the inherent inefficiencies of existing approaches to workholding.

Current workholding processes involve single-application aluminum soft jaws, which introduce resource challenges and require a significant amount of time, skill, and raw material, even before a single part is milled. Re-thinking traditional soft jaw processes to focus on adaptable solutions can eliminate entire steps from an existing process, simplifying workflow and curtailing the time, effort and cost expended in traditional workholding.

In this presentation, you will learn how ground-breaking innovations in the CNC machining workflow can have a huge impact on several pain points in the industry. Furthermore, you will see how allowing lean in-house manufacturing operations and limiting vulnerability to supply chain disruptions will ultimately save your operation valuable time and labor costs.

Rachel Short

**Managing Director,
Workholding
Division**

Norgren Inc.



Rachel Short has been an executive within technical solution companies for more than 15 years. She holds a B.S. in business management from the University of Colorado and is currently the managing director for the Norgren Workholding division of IMI Precision Engineering. Her career focus continues to be in the development of solutions for customers that'll positively impact the success of their business.



With 150+ years of experience manufacturing over 100 million parts per year, Norgren has a proud history of creating innovative engineering solutions in precise motion control and fluid technology. Norgren works with customers across 50 countries in more than 50 countries in critical areas such as Factory Automation, Material Handling, Rail, Energy, Process Control, Life Science and Commercial Vehicles.

The Norgren [Workholding] brand was created when Norgren challenged traditional workholding solutions for machining and developed a revolutionary new product which is transforming the way parts are gripped in CNC machines. The principal Norgren [Workholding] product, Adaptix, rapidly adjusts to powerfully grip the most challenging of pieces.

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[Workholding]

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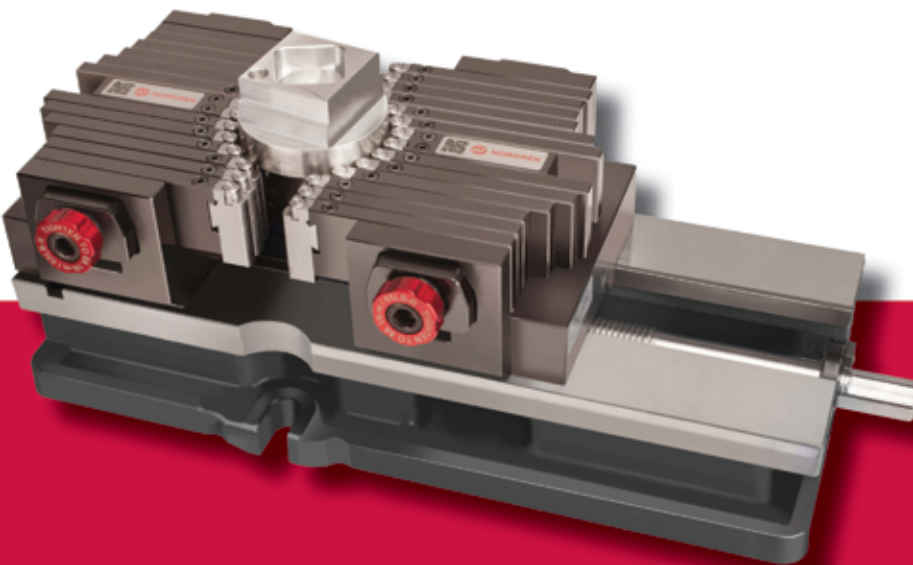
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*The overall repeatability will depend on the specification of the vise, please check manufacturers details.



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Thursday, 9/15

10:00 to 10:55 a.m. / Room W193-A

Topic Track: Quality and Metrology

Session Topic: Calibration Fundamentals

You already know all your measuring equipment needs to be calibrated, but what does that really mean? What are the real rules and best practices to manage that? Maybe you were told to use accredited calibration services, but what should you look for when hiring them? And what should you look for on the calibration certificate? Maybe you want to do the calibration work in-house yourself – how does that work? And is it really OK to not get something calibrated every year? These are just some of the questions that arise when managing the calibration of measuring equipment.

Calibration rules have dramatically changed during the past 25 years, and unfortunately, the changes have made it more complicated for those who aren't calibration specialists. This presentation is an opportunity to get the inside scoop from one of the leading experts in calibration. This presentation will focus on answering the commonly asked questions about calibration today and will provide plenty of time to get answers to any of your calibration questions.

Dr. James G. Salsbury

**General Manager of
Corporate Metrology**

**Mitutoyo America
Corp.**



Dr. James G. Salsbury is the general manager of corporate metrology at Mitutoyo America Corp. He has been working in the measurement field for over 30 years and has been with Mitutoyo since 2000.

Salsbury is an award-winning author in the area of measurement, a frequent speaker and instructor, and was the recipient of the NCSL International 2021 Education and Training Award for his outstanding contribution to the field of measurement science education and training. Salsbury is an active participant in national and international standards efforts in dimensional metrology and tolerancing, including being a member of the ASME B89 Main Committee and a U.S. appointed subject matter expert to ISO/TC 213. Salsbury received his doctoral degree from the Center for Precision Metrology at the University of North Carolina at Charlotte.

Mitutoyo

Mitutoyo Corporation is the world's largest global provider of measurement and inspection solutions offering the most complete selection of machines, sensors, systems, and services with a line encompassing CMM [coordinate measuring machines], vision, form and finish measuring machines, as well as precision tools and instruments, and metrology data management software. Mitutoyo's nationwide network of Metrology Centers and support operations provides application, calibration, service, repair, and educational programs to ensure that our 8,500+ metrology products will deliver measurement solutions for our global customers throughout their lifetime.

IMTS 2022 Booth #135215 / #215317
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Thursday, 9/15

10:00 to 10:55 a.m. / Room W194-A

Topic Track: Process Innovations

Session Topic: Washing Market –
Cleaning Process & Robotics

Automated washing solutions have increased production and improved product quality while reducing operating costs. In this presentation, we explore cleaning processes and the benefits of robot washing for numerous applications ranging from low and high-pressure cleaning, very high-pressure deburring, degreasing, rinsing, and drying applications.

STÄUBLI

Stäubli is a global mechatronics solution provider with four dedicated divisions: electrical connectors, fluid connectors, robotics and textile, serving customers who want to increase their productivity in many industrial sectors. We're an international group operating in 29 countries, with agents in 50 countries on four continents. Our workforce of 5,500 shares a commitment to partnering with customers in nearly every industry to provide comprehensive solutions with long-term support. Originally founded in 1892 as a small workshop in Horgen/Zurich, today Stäubli is an international group headquartered in Pfäffikon, Switzerland.

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Gilles Le Quilleuc

**Head of Business
General Industry &
Food**

Staubli Corp.



Gilles Le Quilleuc serves as head of business general industry & food at Stäubli Robotics and is responsible for the strategic development and growth of the robotics activity in these industries for North America. He started his career at Stäubli in 2001. He held several engineering and technical management positions including Italy robotics division manager and executive committee member. In 2017, Le Quilleuc became the director of sales and business development of Stäubli Robotics North America. He has a Bachelor of Applied Science in BASc, electrical and electronics engineering from the Conservatoire National des Arts et Métiers.

John Burke

**Regional Sales
Manager**

Staubli Corp.



John Burke serves as regional sales manager of Stäubli Robotics. He joined Stäubli in 2015 and is responsible for robotic project management and sales in the food, semiconductor, metal, and automotive industries. Burke has more than 20 years of experience in the automation industry, and seven years of experience in robotics. He has a Bachelor of Science in mechanical engineering from the NC State University.



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Thursday, 9/15

11:00 to 11:55 a.m. / Room W192-C

Topic Track: Quality and Metrology

Session Topic: Vibration-Immune 3D Measurements Enable Production Automation for Precision-Machined Parts

Precision-machined parts in aviation, automotive, and manufacturing industries have tightly controlled tolerances for the dozens of small geometries spread throughout a single part. Commonly referred to as edge break, chamfers, and rounded edges can have specifications on the order of a few thousandths of an inch called out on every edge transition on the part. The sheer number of measurements needed on each part paired with the high volume of parts demands the ability to take not only one measurement quickly but dozens in a rapid process. Quick, single-frame measurements of edge break geometries and defects can be done with a polarized structured light (PSL) method. The vibration immunity provided by single-frame measurements allows for PSL instruments to be mounted on collaborative robots. Robotic automation of such a device yields accurate measurements at volume in short amounts of time. This presentation will discuss gage studies and the increased speed of inspection with automated optical measurements on stationary parts, parts moving on a production line, and rotationally symmetric parts on a rotary stage. The presentation will also look at ongoing projects aiming to automate the inspection process itself, enabling one operator to inspect entire parts in minutes rather than days.

Dr. Erik Novak

**Vice President
and General
Manager**

4D Technology

Dr. Erik Novak is
Vice President and
General Manager



at 4D Technology, where he has worked since 2013. He has been developing instrumentation for precision metrology for more than 24 years in applications such as semiconductor, optics, aerospace, automotive, photovoltaics, and medical devices. Novak has received seven international product awards, holds over a dozen patents, and has more than sixty publications and book chapters related to surface measurement and industrial process control.

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Come try the 4D InSpec, a handheld or automated surface gauge that allows for fast and precise shop floor metrology. Capable of taking 3D, micron-level measurements for edge break, chamfers, corrosion pitting, scratches, rivets, and welds.

4D Technology Corporation products provide high precision surface measurements for roughness, defect detection, optical quality assurance, and finish of machined parts.

We excel in measurement capabilities that are fast and independent of motion and vibration. We use our expertise in optical/mechanical design and software development to invent, manufacture and distribute unconventional devices for the aerospace, optics, automotive, semiconductor and machined parts manufacturing industries.

4D Technology instruments were essential to measuring the mirrors and optics of the James Webb Space Telescope, now in operation.

4D Technology Corporation is a subsidiary of Onto Innovation.

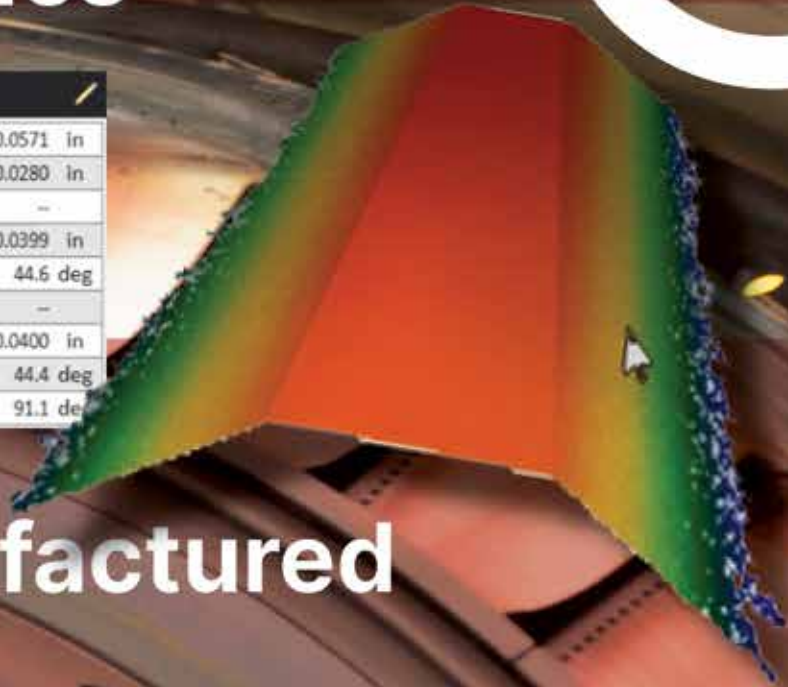
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Chamfer Analysis	
Length	0.0571 in
Center Length	0.0280 in
Left Extended Length	--
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Right Angle	44.4 deg
Intersurface Angle	91.1 de



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Thursday, 9/15

2:15 to 3:10 p.m. / Room W192-B

Topic Track: Process Innovations

Session Topic: Eliminating Scrap in Sheet Metal Stamping Production: In-Line Process Control Anchored in Smart Engineering

Stamping lines generate scrap when production conditions slide outside the “process window” the line is tuned to run within: ranges of tonnage, material, gauge, lubrication, blank positioning, etc. In reality, these parameters are not sufficiently controllable. When this happens, even the most sophisticated in-line data acquisition and process control/artificial intelligence (AI) technologies are incapable of bringing production outcomes into quality compliance without compromising part quality or piece cost. AI and control algorithms simply cannot override basic laws of mechanics and material behavior. Smart Engineering is a systematic approach to engineering a process with narrow quality metrics and a wide process window. This presentation provides insight into the digital execution of this approach, starting from early product design, through process development, all the way to validation/certification of its true potential in producing quality compliant stampings.

Kidambi Kannan

Technical Specialist

AutoForm Engineering USA



Kidambi Kannan is a technical specialist with AutoForm Engineering USA. His responsibilities include the role of technical specialist and training management. Following a Ph.D. in Materials Science and Engineering from the University of Maryland, College Park, Kidambi joined EASi Engineering as a project engineer. He eventually served as project manager for sheet metal forming projects. Kidambi joined AutoForm Engineering USA Inc. in 2002 as technical manager and has been intimately involved in the rapid and industry-wide expansion of AutoForm's presence throughout the past 19 years.



AutoForm was founded in 1995 in Zurich, Switzerland. Since then, AutoForm has grown continuously and rapidly, and the company is now recognized as the leading provider of software solutions for sheet metal forming and assembly simulation.

Today, over 3,500 users in more than 1,000 companies in 50 countries around the world, trust in and rely on AutoForm for their key engineering and manufacturing operations.

Leading the way in research and development, AutoForm's innovations for rapid and reliable validation of design, engineering, and manufacturing processes on sheet metal stampings have profoundly revolutionized the market.

Producing tremendous improvements in quality, time, and cost, AutoForm is an acknowledged industry standard at virtually every automotive OEM and at leading suppliers of tooling, stampings, and materials worldwide.

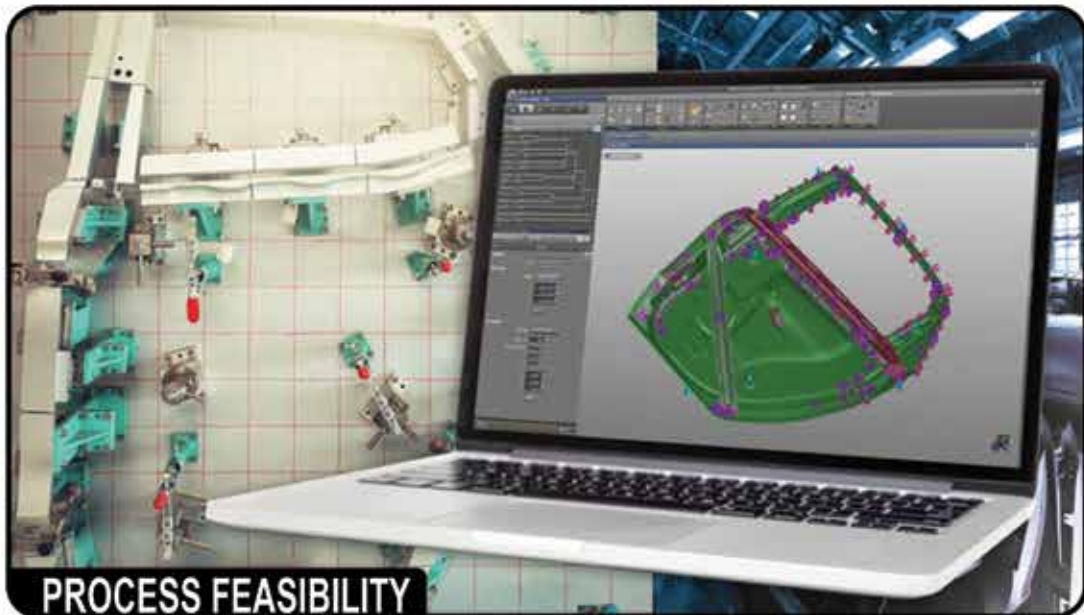
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