

# THE RECORD

Published by the National Tooling and Machining Association

## AUTOMATION IN MANUFACTURING

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A Robotics Method to Make  
Your Job Safer and Easier - pp 16-17

Preparing Your Employees for  
What is to Come - pp 22-23

*and so much more...*



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For a company or individual (regular member or education member) which consistently demonstrated strong support and active participation in structured training for the precision custom manufacturing industry.

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For outstanding service to the industry by a person outside the NTMA regular member companies.

Help us recognize deserving individuals and/or companies that have supported and advanced the industry and the Association.

**Submit your nomination(s) by September 1st, 2020**

**For a nomination form, contact Linda Warner at [lwarners@ntma.org](mailto:lwarners@ntma.org)**

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## THE RECORD

### OPERATIONS & EDITORIAL

Roger Atkins, President  
Doug DeRose, Editor

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## Upcoming NTMA National Events



### Legislative Conference RESCHEDULED

The Legislative Conference scheduled for September in Washington, D.C. is being rescheduled as a series of regional, virtual meetings. More details will be coming in the next few weeks, once dates have been coordinated with members of Congress, One Voice, and NTMA Chapters. Expect a more accessible, impactful, and affordable experience with more member involvement.

If you have questions or need more information please contact Bill Padnos at [bpadnos@ntma.org](mailto:bpadnos@ntma.org)



### Annual Fall Conference October 27-30, 2020 Kansas City, MO

Manufacturing Engage 2020 will build on NTMA's long legacy of providing precision manufacturers and industry leaders with the invaluable experience of gathering together to network, learn, and advocate for the advancement and future of the industry. The conference name change is a part of a larger NTMA effort to evolve programming to better reflect the face of the industry and the expectations of conference attendees.





# PRESIDENT'S UPDATE

For most everyone in NTMA, the U.S., and the world, the past 5 months has been like no other period in our lives. We have/are experiencing a pandemic like none other. Not only has it been life changing for many, it has taken the lives of countless thousands of people. In addition, we are experiencing civil unrest, the likes of which has not been seen in years. In both challenges we see and have seen the best in people and the worst in people. Yet, we as a resilient people and nation will overcome the current challenges.

NTMA members and companies are part of the backbone of American manufacturing and are vital in helping our nation overcome these current unprecedented challenges. We have seen our members convert their manufacturing operations to supply badly needed PPE equipment, while others have continued to support industries supplying critical components to key segments of industry that keep us safe and others that keep our daily support mechanisms running and in place even through these current challenges. YOU have done this without being asked or coerced. You have done it because it is the right thing to do for you, your employees, your customers, and our nation. Yet, another reason I am so proud to be an NTMA member.

I remind us all that as NTMA Members, we are a part of the largest "advanced precision manufacturing association" in the United States. It has been interesting how, through these difficult times, small to medium size companies have been recognized for their contributions. They contribute well over 50% of our nation's economy and employment. While large

corporations and our government meet over what to do, YOU ACT. We move mountains while others slumber. That's what makes us the backbone of American Manufacturing.

While I proudly profess the importance and contributions of NTMA members, I do realize that these have been difficult times for us all and that many of our members have taken serious blows during these times. Frankly, blows that will most likely continue through the end of the year at a minimum. As I stated above, we are a resilient people. I think the real question for us as manufacturers is, "What are we going to change or do differently to offset future disruptions to our businesses?" We must look within our own companies to see what weaknesses have been exposed as a result of the unknown/unforeseen pandemic and how can they be offset for future unplanned disruptions.

As I have talked to many members, many seem to be talking about "automation." What can be automated within our manufacturing operations that help eliminate social distancing challenges, sanitation issues, staggered hours issues, spreading of the virus, and lead to increases in unattended time or lights out manufacturing. Not necessarily doing more with less people, but doing more with the people you have. Contrary to what some say about automation reducing the workforce and taking away people's jobs, the real effect of automation is just the opposite. It allows you to better utilize your current employees in the things that cannot be automated while applied

automation is producing product. It can actually be a win-win. I think the big change is not a reduction of your workforce, but the retraining of your workforce to include automation. Once accepted by all parties, the opportunities for growth, stability, sustainability, and most importantly, profitability increase.

There is no time like the present to make the needed changes for the future. As to automation, we have fellow NTMA members as well as National Associate members who specialize in helping companies analyze, design, build, and install automation cells. We also have fellow NTMA members that have already started the journey towards automation that are open to answer your questions and give you input about their journey, lessons learned, and best practices. If you could just automate some percentage of your businesses, that growth alone could help offset unplanned downturns and/or contribute to your long-term growth plan.

As one NTMA member told me, "it's time for change and it's time to double down on marketing our companies." We have learned how to manage in the midst of COVID; it's now time to dust off and get back to business. Could a move towards automation be your next big step? If YES, NTMA is here to help and support your efforts.

**"We are Stronger Together."**

Roger Atkins, President - NTMA

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# Metals and Plastics Manufacturing and Machining

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## One Voice: Federal Government Advocacy Program

Although 2020 has offered new and unique challenges to our industry, it's important to continue to have a partner in advocacy. NTMA continues to work closely with the team at One Voice: the combined federal government advocacy program representing small and medium-sized business manufacturing in America.

In addition to providing guidance through the uncertainties caused by COVID-19, One Voice has an innumerable amount of fantastic resources, not only to help you answer questions in your shop, but to

continue to make the most of your business. This includes sponsored virtual events, news releases, educational materials, the Talking with One Voice podcast, and much more.

We hope you continue to utilize this key partner in One Voice - one that ensures that millions of manufacturers across the country have their voices heard.

Please visit [www.metalworkingadvocate.com](http://www.metalworkingadvocate.com) for more information.



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## How NTMA Members Stay Connected During Unprecedented Times

Many NTMA members are looking for ways to stay connected during these uncertain times. While we are not able to gather together in person, we can still connect virtually. To address this issue, in May, NTMA started hosting a bi-weekly "Member Drop-In" virtual meeting. This is a unique opportunity to check in with your fellow NTMA members, discuss complex problems, and get ideas or solutions from your peers.

This "virtual roundtable" has been very beneficial to the members who have attended and we encourage you to take advantage of this quick, easy, and free networking opportunity.

“

The Drop-Ins have been very informational for me and have helped me keep in touch with membership... I think it has really helped me get to know and interact with different members across the country. I see many old friends there as well as making some new ones. The NTMA remains a very important organization for Blaser and we will remain committed to participation in events.

**Drew Borders**  
Business Development Manager, Global Markets  
Blaser Swisslube Inc.



**Upcoming Member Drop-Ins are scheduled on the following dates:**

August 25, 2pm EDT; September 8, 2pm;  
September 22, 2pm EDT

Please check your e-mail for future invites, or contact NTMA's Member & Chapter Relations Manager, Kelly LaMarca at [klamarca@ntma.org](mailto:klamarca@ntma.org) or (216)264-2837.

**We hope to see you on the next call!**



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# What's the Robot's Name?

By Bob Mosey, President - Moseys Production Machinists

We purchased our first automation items in 2003 in the form of two horizontal Mori Seiki machining centers and a linear pallet pool. It took us several years to really start using them correctly. In 2007, we added our second LPP system which took much less time to get rolling. Automation is awesome!

All of this was great for our milling work, but we were still man and machine on all of our lathes. I challenged the team here at Moseys, led by John Zmuda, now our COO, to come up with a solution to automate our turning like we had our milling work.

A few weeks later they presented a solution that included a 5-axis mill/turn that would completely finish a part in one operation, eliminating several separate operations and reduce lead time. The solution also included a FANUC robot to load and unload parts. Say hello to lights out manufacturing. Perfect!

As you might expect, everyone wanted to name the robot—Robbi, Herbie, Rex, Wall-E, R2D2, Hal, even i-Robot. None of these names stuck and everyone just called it what they wanted. I called it Money.

Since then, we have added a second mill/turn and robot and we have a third robot in the queue to be added to one of our large lathes. None of them had names.

So last year on Manufacturing Day, we had several high school groups touring the shop. The final station was the robot machine. John Zmuda would run the demo and would allow one of the kids to operate the robot in manual mode—always the highlight and most memorable part of the tours.

At the completion of the demo, the young man asked John “So what is the robot's name?” John said that we

# Moseys

didn't really have a permanent name. The young man said, “You should call it Fred!” He had no idea that my dad's name was Fred and that we always called him Freddie. I had to turn away as tears filled my eyes.

John's hobby is woodworking and in complete secrecy, he worked with Christi Zmuda and Nick Mosey to design and build the plaques pictured below. They presented them to me at the end of one of our management meetings and again, I had to turn away. Not only did he make a Freddie sign, he also did one for Nedra, my mom, and my sister Sheila, who have all passed away.

So now we have permanent names for our three robots and when you tour our shop, you will see Freddie, Nedra, and Sheila, hard at work. Awesome! Now we can't get another robot until I... well, it will be a while.

[www.moseys.com](http://www.moseys.com)





# Ka-Wood Celebrating its Centennial

By Kenneth Carter, Gear Solutions editor

For the last century, Ka-Wood Gear & Machine has been manufacturing precision gear products that include spur, helical, and worm gears, as well as producing spline shafts, racks, timing belt pulleys, and sprockets for a vast array of industries.

Ka-Wood Gear was started by Joseph Kloka's grandfather, Joe Kloka Sr., in 1920. His father, Kloka Jr., took over after World War II. Kloka III became involved after he returned to the U.S. after serving in the Vietnam War.

*"We're going to treat you fairly and with respect and understand that we have a relationship and that we're in this together."*

Going that extra mile for its customers and just the simple act of caring can go a long way to keep those customers coming back. And when it comes to special needs, Ka-Wood not only has the ability to make sure the job gets done, but the fortitude as well, according to co-owner and VP of Operations Don Carlson,



Even as the industry changes, one thing that won't is Ka-Wood's commitment to treat both the small guy and the big guy with equal respect, according to Tuttle.

*"The industries we service right now range from aircraft to machine tools to automotive, printing, packaging, off-road, mining, fastening, pharmaceutical, defense, and, again, even the sample gears,"* he said.



Over the next few decades, Ka-Wood Gear moved and expanded from a 3,300-square-foot facility in Detroit, Michigan, to a 9,000-square-foot facility in Madison Heights, Michigan, in 1981. The company has continued to grow to its current size of 23,000 square feet of manufacturing space in a custom designed facility. It's not every company that can boast it's been in business for a century, and that milestone is not something the owners of Ka-Wood take for granted. Being able to change with the times while offering its customers top-rated service and products has made Ka-Wood a consistent leader in gear manufacturing.

A large part of what keeps the company going strong is its product and industry diversification, according to Lenny Tuttle, co-owner and Operations Manager. *"We do a wide range of products in a variety of sizes and configurations,"* he said. *"We want to offer our customers one stop shopping. We can hob, shape, broach, shave, mill, or grind any gear product."* The quality is a given, but an essential element that keeps Ka-Wood's customers coming back is also the company's honesty, according to Tanya Carlson, co-owner and controller.

profiling a customer that required a large amount of product, necessitating a "second shift."

*"Our customer was thrilled that we were able to do that for them. This would not have been possible without our well trained, knowledgeable, and flexible employees. Our employees are incredible and they have the same moral values as the company."*

For their 100 year anniversary, Ka-Wood had planned a celebration this summer. Unfortunately, celebration plans have had to be postponed as the industry — and the world — deals with the COVID-19 pandemic, but Tanya Carlson said an anniversary function would happen.

What isn't on hold is Ka-Wood's commitment, to its customers and the industry, and as the industry continues to change, the owners of Ka-Wood all stressed that the company will continue to do what is best for its more than 700 active customers.

Don Carlson said it best: *"We are committed to evolving with those changes and trying to be on the leading edge which includes investing in the equipment that'll keep us ahead of the changing markets."*

*"We have gears all over the world that we manufacture here. We have perforating gears that are going to Russia and China. We've also manufactured nut driving units that ended up in Belgium and France. As the tide rolls and as that wave changes, Ka-Wood changes with it. We'll be ready for that future."*

More info: [kawoodgear.com](http://kawoodgear.com)



# Hand Guidance - an Easy-to-Use Programming Time Saver

## A Robotics Method to Make Your Job Safer and Easier

By Greg Buell, Collaborative Robot Product Manager, FANUC America

### Part 1 – Hand Guiding Robots

There are four methods for collaborative robot operation defined in the RIA 15.06-2012 safety standard, and each has its own place in manufacturing operations. Of the four, hand guiding seems to get the least amount of attention. In the safety standard, section 5.10 (Collaborative Operation Requirements) defines the prerequisites necessary for having robots function in collaborative operation as complying with one or more of the following:

*5.10.2 Safety-rated monitored stop*

*5.10.3 Hand guiding*

*5.10.4 Speed and separation monitoring*

*5.10.5 Power and force limiting by inherent design or control*

Hand guiding simply states that the equipment, for example a hand guiding handle, will be located close to the end-effector or robot tool, and will have both an emergency stop and an enabling device (think live-man switch like what you'd see on a teach pendant). Many automation users view hand guidance simply as lead through teach, which is the ability to move the robot freely to teach points or paths in the operation. This is a common opinion, but lead through teaching is just the tip of the iceberg in the vast number of applications that may be improved with hand guidance. Another common view is that hand guidance applications are limited for longer reach or heavier payloads because there are not many large collaborative robots available. While it's true that most power and force limiting collaborative robots may not be able to handle the really large applications, it's important to understand that most robots can be used for a collaborative application.

At the core of collaborative robots or collaborative operation is "collaboration" – to work jointly with others. Collaboration with a robot is frequently thought of as working hand-in-hand with the robot to complete a task. At the core, hand guiding consists of operator moving or leading the robot by hand – a form of collaborative operation most closely aligned with the true meaning of collaboration. Keep in mind that the most efficient use of collaborative robots is achieved by having the operator and robot interact when necessary, and leave each to complete

individual tasks in their own workspace. It's not much different when sharing a work station with another person. When integrating tools to assist operators, the devices should increase efficiency and decrease stress or strain. If you are constantly reaching or moving around your partner, whether it be a person or a robot, the entire process would be less efficient. It is better to look closely at the task as a whole, and the solution you are trying to achieve to figure out the best fit for a collaborative robot. In part 3 of this article, we'll review a few collaborative applications for both small and large companies.

### Part 2 – Hand Guiding - Flexibility and Functionality

According to section 5.10.3 of the RIA 15.06-2012 safety standards, hand guiding equipment needs to have an e-stop and enabling switch. However, in cases where hand guiding is used on a robot that meets the requirements of power and force limiting collaborative operation, the e-stop and enabling switch may not be necessary. For these reasons, it really helps when there are multiple hand guiding options. FANUC offers two types of hand guidance handles; one includes the necessary integral safety for standard robots, and the other is wireless and works with the CR series of power and force limiting robots. When a product has a lot of functional options it's like having a well-stocked toolbox – you may not need all of the tools all of the time, but having them available when necessary can help users quickly navigate around roadblocks.

The FANUC hand guiding product has a variety of built-in features, or tools for teaching-based applications. The hand guidance software is configured to teach paths or points, and a simple push button triggers the action.

#### What is point-based teaching?

In point-based teaching the user moves the robot using the hand guiding handle to a position, then presses the teaching button to record the point. The user continues to guide the robot to the next position and records the point. Repeating this process can quickly generate a complete motion program for the entire application. Point based teaching is an intuitive process that's especially easy for those who have never used or programmed a robot.

#### What is path-based teaching?

For some processes, recording the robot's complete path motion is required. This method applies to applications like sanding or polishing over a complex contour surface when it's essential to have a smooth path that follows a shape. Hand guiding software is set up to automatically record positions during the robot's motion, which then accurately plays back the complete path. The operator simply presses and holds the teaching button and then moves the robot along the path. As the robot moves, positions are generated at preset intervals. Once the motion is complete and the button is released, the path is generated in the program. If fine tuning is needed, each position can be individually modified to achieve the perfect path.

#### More button-control options

Another great feature of the hand guiding handle is a button to control the tooling. Each press of the button will toggle the state of the tool. This is especially useful in applications where an operator needs to move a part from one location to another. Programs are available to limit the gripper's function in the pick or drop locations to prevent the operator from accidentally releasing the part outside of the preset zones. Some applications might require slower, more precise robot motion in critical areas. A button is included that can automatically change the motion of the robot under hand guidance control to a slower speed for better control of the robot's position.

In other situations, it may be best to limit the robot's motion to only linear movement, not allowing rotation of the tool. A button is included to switch the motion profile from rotational articulation to only linear motion. On the larger wired hand guiding products, an additional button is included to program applications require ultimate process control and flexibility such as multistage operations or when local safety regulations requires two-hand operation of the robot. Often, this additional button is used to indicate the end of the hand guidance portion of the application and allows the robot to return to individual autonomous mode once the necessary safety requirements are met (e.g. the operator leaves the collaborative space). Depending on your application, you may not need all of the tools available with FANUC's hand guiding product, but each feature is built in and ready at a moment's notice.



**Part 3 – Hand Guiding Applications** - Now that we know what hand guiding collaborative operation is, and all of the features that are available with the product, how are companies using this product? As mentioned in Part 1 of the article, it's often best to separate hand guiding applications according to duties.

**Application Example 1** - This application has an operator using a manual lift assist device to load parts into an assembly station that feeds into the rest of the line. The operator walks the lift assist device to the part rack and picks the part, then walks the part to the assembly station and loads it into the fixture. Once the part is in place, the operator moves the lift assist device out of the way so it doesn't interfere with the rest of the operation. Instead of automatically adding a hand guiding robot as a direct replacement for the lift assist, let's examine the functions of the application separately.

**Part 1** is an autonomous robot operation requiring the robot to pick a part out of a rack and bring it to the operator. Setting up a light screen between the robot and the operator will enable the robot to run safely in automatic mode when properly configured per the risk assessment. This allows the robot to relieve the operator by handling the repetitive and heavy lifting part of the process.

**Part 2** begins once the robot picks the part and brings it to the light screen. At this point the operator reaches through the light screen, which puts the robot in a safety rated zero speed check. Once the enabling switch is activated, the robot motion is in the operator's control who then guides it into the assembly area where the part is loaded into the fixture. Once the part is released, the operator guides the robot back through the light screen. When the enable switch is released, the robot returns to the safety rated zero speed check until the light screen is cleared. The robot can then resume autonomous mode and return to the

part rack for the next part. The operator performs the assembly operation and then sends the part down the line to the next station. By not having to get parts manually from the part rack, the operator's time is freed up to perform additional value-added work.

**System Benefits** - The time savings may be enough to reduce the number of assembly stations on the line since the operator can perform additional work within the task time of the first station. An additional benefit is that by the end of the shift, the operator will be less tired from not having to walk between the first station and part rack for each part cycle.

**Application Example 2** - This example involves an existing collaborative weld inspection station. This Safety Rated Monitor Stop system has the robot bringing a welded frame into a shared workspace. Once the robot is stopped, the weld inspector enters the shared space and inspects the weld. On occasion, when welds need to be touched up, the part may not be at the ideal angle to weld. Instead of requiring a technician to go to the cell and jog the robot, hand guidance is used. The hand guiding handle is attached to the tooling in a convenient location for the weld inspector to access.

**System Benefits** - Enabling hand guiding allows the part to be easily moved to the right position for weld touch ups. This also allows the inspector to view multiple sides of the part by manually moving it with the hand guiding handle. This application now incorporates two types of collaborative operations and is a great example of how sometimes multiple types of collaborative operation can be engineered together to provide the ideal manufacturing solution.

**Application Example 3** - A good starter/DIY application involves using hand guidance to simplify a vision process where part styles or trays are manually changed. The system setup first requires the operator to place a tray of parts on a table. The robot uses vision to find the tray and the first part, and then begins

the process. As part trays change, the robot's viewing position must be adjusted. Using hand guidance can relieve the operator from having to put the robot into teach mode to make "vision find" changes on the teach pendant. Once this function is pre-programmed, the operator can make needed changes using the hand guidance tool. The extra process button on the hand guidance tool communicates that the operator has moved the robot by hand to a new "vision find" position. The robot then uses the new position taught with hand guidance until the next part tray change.

**System Benefits** - For new users or do-it-yourselfers, this method is extremely easy to use compared to modifying a robot program, and helps save valuable time.

**Application Example 4** - Many high mix / low volume welding shops are experiencing a lack of trained and qualified welders. Adding hand guidance to an arc welding robot allows an operator with basic welding knowledge to easily teach programs to weld their small batch parts. The operator uses hand guidance to move the welding torch so the wire is in the proper position for the weld joint. The buttons on the hand guidance hardware provide a simple user interface that make it easy to create an entire program for any part. The operator can then let the robot weld the part while they move on to the next weld station.

**System Benefits** - Robot hand guidance alleviates the need for the welder to be proficient in jogging and programming the robot with the teach pendant. By allowing the welder to quickly and easily program the robot, they are able to keep production running at multiple stations with a high part mix.

As more small-to-medium-sized manufacturers implement robots to tackle a variety of applications and processes, hand guidance tools and techniques will continue to expand in functionality and become even easier to use.



## NTMA ENGAGE 2020 FEATURED SPEAKERS OCTOBER 27-30, 2020 - KANSAS CITY, MO

**Brandon Dempsey, EMCEE**

Wednesday, October 28th  
9:30am-10:30am

An adventurer, entrepreneur, and father, Brandon is a serial entrepreneur and driving force behind his marketing firm goBRANDgo!, specializing in outsourced marketing services for privately held \$10-100 million growth oriented companies. Brandon is a featured thought leader in numerous online and print outlets, such as Forbes, Inc., and Huffington Post. When he isn't working, he spends his time training for Ironman triathlons and motorcycling through countries around the world. Brandon lives in St. Louis with his wife, Adriene, their daughter, and two dogs.

**Harry Moser**

Wednesday, October 28th  
1:15pm-2:15pm

Harry is the founder of the Reshoring Initiative. He was inducted into the Industry Week Manufacturing Hall of Fame in 2010 and was named Quality Magazine's 2012 Quality Professional of the Year and FAB Shop Magazine's Manufacturing Person of the Year. Harry participated actively in President Obama's Insourcing Forum at the White House, received the Manufacturing Leadership Council's Industry Advocacy Award in 2014, and the Made in America 2019 Reshoring Award. He was named to the Commerce Department Investment Advisory Council in August 2019.

**Paul Nathanson**

Wednesday, October 28th  
2:30pm-3:30pm

With more than 25 years of experience in strategic, crisis, and corporate communications, Paul Nathanson's focus is on reputation management, message development and implementation, public policy analysis, media relations, and strategic counseling services for a range of U.S. and international clients. He assists clients in formulating arguments in persuasive ways and ensures that clients' views are heard and understood by their target audiences, including members of Congress, policymakers, the news media, and the public.

**Omar Nashashibi**

Wednesday, October 28th  
10:45am-11:45am & 2:30pm-3:30pm

For nearly ten years, Omar Nashashibi has worked with clients, members of Congress, agency officials, public policy foundations, non-profits, and media in Washington, D.C. A founding partner of The Franklin Partnership, Mr. Nashashibi works with members of Congress on behalf of his clients on a variety of issues from trade to federal funding opportunities to telecommunications.

**Caitlin Sickles**

Wednesday, October 28th  
2:30pm-3:30pm

Caitlin Sickles has a decade of experience in strategic communications. Her focus is on the design and implementation of comprehensive, multi-platform communications campaigns for a range of companies and associations in sectors including manufacturing, consumer products, national security, health care, energy, and the environment. Caitlin leads the Policy Resolution Group's digital communications program, providing comprehensive brand development counsel, including sophisticated social media management and its use for effective advocacy. Caitlin was recognized by PR News on their list of 15-to-Watch in 2011.

**John Guzik**

Wednesday, October 28th  
10:45am-11:45am & 2:30pm-3:30pm

John Guzik is a founding partner of The Franklin Partnership with over 20 years of Capitol Hill and campaign experience. Previously, John served as Chief of Staff for Ways and Means Chairman Dave Camp. He was the top legislative strategist working on tax, trade, health care, transportation, and agriculture issues. John also works closely with the Senate Finance Committee on health care, tax, trade, and many other issues important to his clients.



**Alex Becker**

Thursday, October 29th  
3:30pm-5:00pm

Alex is a manager and cybersecurity consultant in the CLA Cybersecurity & Advisory Services Group. Alex is currently performing penetration testing, vulnerability and risk assessments, and controls reviews for a wide range of industries, including financial institutions, manufacturing and distribution, health care, non-profit, insurance, and government agencies. Alex currently holds multiple certifications including the CISSP, OSCP, OSWP, and CISA.

Prior to working for CLA, Alex worked under the department head of the Cyber Security, Virtualization, and Forensics department at Century College, working as an ad hoc Systems Administrator in addition to creating lab environments for student exercises.



**David Anderson**

Thursday, October 29th  
3:30pm-5:00pm

David is a principal and information security consultant with eleven years of experience in the Information Technology field. He has experience in networking, Linux, and managing a Microsoft Windows domain. Currently, he performs and provides project management for network penetration testing, internal vulnerability assessments, and social engineering engagements within a wide range of industries. These industries include banking and finance, health care, electric and utility, state and local government, and more.



**Dr. Chris Kuehl**

Friday, October 30th  
8:30am-9:30am

Dr. Chris Kuehl is a Managing Director of Armada Corporate Intelligence and one of the co-founders of the company. He has been Armada's economic analyst and has worked with a wide variety of private clients and professional associations over the last 18 years. He is the Chief Economist for the National Association for Credit Management. He prepares NACM's monthly Credit Managers Index and is also the Economic Analyst for the Fabricators and Manufacturers Association and writes their bi-weekly publication, *Fabrinomics*, which details the impact of economic trends on manufacturers.

THE PRECISION **MANUFACTURING** CONFERENCE

# ENGAGE<sup>TM</sup> 2020

POWERED BY



**October 27-30, 2020 - Kansas City, MO**

\ **For more information, please contact**

\ **KRISTEN HRUSCH**

\ **216.264.2845**

\ **KHRUSCH@NTMA.ORG**

THE PRECISION **MANUFACTURING** CONFERENCE

# ENGAGE 2020

POWERED BY 

**\*Deadline to sponsor – September 30, 2020**

**\*Sponsorship Opportunities for Manufacturing Engage 2020 do not Include Registration to Event**

## ☐ **Livestream Sponsor - \$8,000**

- Logo on livestream landing page
- Logo on pre-conference promo materials
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*
- More visibility options to come

## ☐ **EL Rising Award Winners & Emerging Leaders Reception (1 available) \$3,000**

- Logo recognition on any print or web material
- Podium recognition at Manufacturing Engage when EL Rising Awards are presented
- Funds conference registration and hotel accommodations for one EL Rising recipient
- Logo on screens during awards luncheon at Manufacturing Engage 2020
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ **Networking Break Sponsor (5 available) \$3,500**

- Branded napkins
- Signage
- Coffee, water & tea and snack
- Opportunity to place banner stands and collateral throughout the break area
- Recognition at general session to thank sponsor
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ **Wellness Sponsor (2 available) \$3,000**

- Signage
- Logo'd water bottles/thermoses
- Logo'd pens and notepads
- Logo'd face masks
- Logo'd hand sanitizer
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ **General Session Speaker Sponsor (6 available) \$4,000**

- Logo on both large screens at the start and throughout the session
- Signage
- Opportunity to introduce the session
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ **Cornhole Tournament: NRL Fundraiser (1 available) \$4,500**

- Branded drink tickets – 1 for each attendee
- Logo'd koozies
- Signage
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ **Conference App (1 available) \$6,000**

- Logo'd splash page that appears any time attendees open the app
- 1 customized rotating banner ad (provided by sponsor)
- 3 push notifications
- Logo on app download instruction page
- Logo in pre-conference email to attendees
- Sponsorship highlighted in conference app

## ☐ **Conference App Ad Sponsor (10 available) \$1,000**

- Customized rotating banner ad
- Links to your website
- Sponsorship highlighted in the conference app
- Post event visibility *The Record*

## ☐ **Regiception (1 available) \$6,000**

- Branded napkins
- Signage
- Opportunity to meet and greet attendees as they arrive and make a first impression
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ **Breakfast Sponsor (3 available) \$6,000**

- Branded napkins
- Signage
- Recognition in app
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*



# Sponsorship Opportunities

October 27-30, 2020 • Kansas City, MO

## ☐ Conference Emcee Sponsor (1 available) \$6,000

- Logo on screens in general session room
- Opportunity to introduce the emcee and closeout conference
- Recognition in the event app
- Post event visibility in *The Record*

## ☐ Closing Keynote Speaker (1 available) \$6,000

- Logo on both large screens at the start and throughout the session
- Signage
- Opportunity to introduce the session
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ Podium/Stage Sponsor (1 available) \$7,500

- Branded podium sign
- Recognition of sponsorship at podium
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ Hot Lunch Sponsor (1 available) \$8,000

- Logo'd menus at each seat
- Recognition of sponsorship at podium
- Rotating logo on 2 large screens in front of room
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ Conference Wi-Fi (1 available) \$8,000

- Ability to name the network and create the password
- Email promotion to attendees prior to conference with logo and network information
- Onsite promotion with logo'd information cards
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ Exhibitor (20 available - Only 8 left!) \$1,500

- Includes a 6' table, 2 chairs & table linen
- Logo on signage as exhibitor
- Logo on website, pre-conference promos and print materials
- Sponsorship highlighted in conference app

## ☐ Awards Assembly Sponsor (1 available) \$10,000

- 3-5 minutes to speak before the awards
- Logo on screens
- Logo'd podium
- Sponsorship highlighted in conference app
- Post event visibility in *The Record*

## ☐ Evening Event Lead Sponsor (1 available) \$15,000

- Logo on signage & branded napkins
- Additional branding opportunities based on venue (tv screens, logo'd tables, gobo etc.)
- Logo on website, pre-conference promos and print materials
- Opportunity to speak for 3-5 minutes during the event
- Post conference recognition in our record newsletter

## ☐ Evening Event Supporting Sponsor (2 available) \$5,000

- Logo on signage
- Additional branding opportunities based on venue (Photo booth, dj/band, beverage sponsor)
- Recognition in conference app
- Logo on website, pre-conference promos and print materials
- Post conference recognition in our record newsletter

## ☐ Additional Exposure Opportunity \$500

- Have an appetizer or beverage served from your table during our Wednesday reception

**FOR SPONSORSHIP INQUIRIES AND DISCUSSIONS PLEASE CONTACT:  
KRISTEN HRUSCH - 216.264.2845 / KHRUSCH@NTMA.ORG**



## Preparing Your Employees for What is to Come

Bill Padnos, Workforce Development Manager

Automation's importance continues to increase as machine shops prepare for the future, given its promise of better service, cost reduction, reduced errors, and continued functionality during a global pandemic. While investment in new equipment and software is still key for manufacturers, adequately preparing your workforce will also help in future-proofing your company. As stated by Deloitte, "In order to ensure alignment between your automation strategy and your broader corporate strategy, leadership needs to be fully aligned not just on business case financials, but also on workforce considerations."

As you look to incorporate new efficiencies through automation into your systems, there are three easy things you can do to prepare your employees to adapt to new and ever changing technology.

### Invest in Education & Training

"If we train our employees, then they will leave. However, what happens to our company if we don't train them and they stay?"

According to the Association for Talent Development, companies that offer comprehensive training programs have 218% higher income per employee than companies without formalized training. Per HR Magazine, companies that invest \$1500 on training per employee can see an average of 24% more profit than those who invest less. Further, an IBM study revealed that employees who feel that they can't develop in the company and fulfill their career goals are 12 times more likely to leave the company. This suggests that continuing to invest in training and development will have a positive impact on your bottom line, even during a pandemic-induced economic downturn.

This investment in education and training needs to also have a clear and transparent strategy. Company leadership should develop learning goals for each employee and explain why he or she is participating in the training. After a training session is completed, discuss with the employee on what he or she learned, and how that applies to their current or future job responsibilities. Employees need to know that their manager is interested in their development and is willing to take time to discuss and encourage their progress.

Education and training does not just have to be in the classroom or online. It is important to provide your employees with volunteer opportunities, like being an NRL industry advisor or STEM event volunteer, to help them develop their own personal soft skills, like communication, teamwork, and leadership. Not only does this promote your company's support of the community, but it is also a deeply rewarding way of investing in your human capital.

### Transition from Already Outdated Systems

Using outdated systems not only prevents your company from moving forward, it can cause you to take several steps back. Technology that is already obsolete, or is soon to be, hinders progress, slows processes, and creates roadblocks to productivity.

The move toward Industry 4.0 didn't happen overnight; the transition has been building up for years, and it is upon us. While some of your client projects seem to be more technology-proof than others, it's important not to be complacent. Consider evaluating your existing systems, and start planning updates now so you





aren't caught by surprise when the systems become obsolete. By building in time today to plan for change tomorrow, your business will be better positioned to not only adapt to a changing landscape, but weather the increased costs that inevitably come with purchasing new software and implementing new systems.

### Talk Regularly with Employees about the Future

Companies of all sizes need to have two-way communications with their employees. Consider holding regular town hall style meetings, where employees can freely have an ongoing conversation about their concerns. Be honest and straightforward in addressing employee questions and concerns. Also, offer ongoing presentations to employees with updates on new technology, plans, and ideas for future change.

Trust your employees to make good decisions, give them the tools they need to do their jobs, and then step out of the way to let them shine. Celebrate milestones for individuals and as a team, particularly as new processes are developed or new ideas are implemented. The more open you are to creating an

ongoing dialogue, the more your employees will trust in your leadership and function like a cohesive team.

### Change is Coming

Above all, understand that incorporating AI and automation is unavoidable no matter the industry. Automation offers great potential for machine shops to get smarter and more efficient; successful organizations will be those who embrace the change associated with this innovation and who refocus their workforce to maximize the value with this initiative.

I truly believe that your employees want to be continuously challenged with new projects and rewarded with greater job responsibility. Linking learning and career development is a powerful way to build employee engagement in your organization. This will encourage employees to want to learn about new technology, because they know it will help them grow as a professional throughout their career.

Look to NTMA and our partners for the education and training resources that you need to prepare your employees for what is to come. Our Mechanical

Aptitude Test will help you identify potential or current workers that are up to the challenge of being a skilled machinist, while NTMA-U will provide them with the opportunity to learn and, thereby, empower their position within the workforce. The Pre-Apprenticeship program allows students and unengaged youth in your community to discover the fundamentals of being a machinist and provides the understanding of the benefits of working in industry.

Our partners in education, like Tooling U-SME, are able to provide your employees with specific online courses to help them acquire new skills and responsibilities. Our national associate partners offer their own educational and training opportunities, along with the resources you need to implement new technologies into your shop.

If you are not able to find the resources you need to incorporate new training and efficiencies into your systems, let us know. We will be glad to help you find what you need.



# MA Manufacturing Emergency Response Team NTMA Member / Boston Chapter

by Michael Tamasi, Owner and CEO - AccuRounds

It's truly been an honor co-chairing the MA Manufacturing Emergency Response Team (M-ERT). The contributions by so many talented individuals who volunteer their time are beyond admirable...what an inspiration!

Thanks to the Office of Massachusetts Governor Charlie Baker, Massachusetts Technology Collaborative, and Carolyn Kirk for the recognition. To all the companies who pivoted their manufacturing in record time to make PPE, our healthcare community and the residents of Massachusetts thank you!



## You Spoke, Grainger Listened!

NTMA and Grainger are excited to announce the details of our NEW agreement with enhanced member benefits & customized offer!!



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## NRL Colorado Approved for Workforce Development Grant

We are excited to announce that NRL Colorado, a division of the National Robotics League, has received a Local Grant in Workforce Development from the Union Pacific Foundation for 2020.

This grant, worth \$5,000, comes via the Union Pacific Foundation Board and their long-standing commitment to improving the quality of life in communities they serve and work in. For Workforce Development, the Local Grant is allocated to causes focused on putting youth on the right track; raising awareness of and educating young adults in industries like manufacturing; upskill the existing workforce and skill training programs; and provide training for nonprofits.

NRL Colorado has been operated via the Rocky Mountain NTMA Chapter, focused on engaging students in STEM-based career opportunities

and working to close the gap in the manufacturing workforce by providing new paths to success for the next generation. NTMA applauds the success of this program and can't wait to see NRL Colorado's continued efforts amplified through this grant.



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**SUPPLIERS NEEDED FOR COVID-19 RAPID RESPONSE**

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Members can access Airgas discounts through National Purchasing Partners. NPP is a member benefit provider of NTMA and offers substantial savings on major brands such as Airgas, Office Depot, Verizon, Sherwin-Williams, American Express, and more.

NPP membership is free and there is no obligation to purchase. Simply enroll your business at <https://mynpp.com/association/ntma/>. Once you enroll, sign up for the Airgas offer.

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## NTMA 6S Excellence Award PURPOSE:

To improve the perception of American manufacturing by promoting and recognizing excellence in member shop organization and efficiency.

### HOW IT WORKS:

- NTMA companies apply for the award by submitting a self-assessment based on criteria that demonstrate best in class practice in the six S's:

- |                 |                |
|-----------------|----------------|
| 1. Safety       | 4. Shine       |
| 2. Sort         | 5. Standardize |
| 3. Set in Order | 6. Sustain     |

- Certificates are awarded every year for the first 5 years based on self-assessments submitted. Once the recipients receive 5 certificates, they are also presented with a trophy.

### SPONSORSHIP OPPORTUNITY:

- Conference exposure via introductions, etc.
- Promotional exposure: web, print, blogs, and emails that promote and support the award.

### SUBMISSION DUE DATE:

Please submit your application before September 30 to be considered. For more information, please contact Linda Warner at [lwarn@ntma.org](mailto:lwarn@ntma.org) or 216-264-2824.

Applications and self-assessment documents can be found here <http://www.ntma.org/resources/documents/6S-excellence-program>. Applications should be sent to [6Saward@ntma.org](mailto:6Saward@ntma.org)



# WHAT'S THE BUZZ ALL ABOUT?

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## Forbes

Move Your Back-Of-The-Envelope Custom Parts Quotes Into the Cloud? Paperless Parts Says No Problem!



"Our shop is much more efficient, our throughput and revenue increased by 15% to 20% in 2019."

**JUSTIN QUINN**

President, Focused on Machining



"Our manufacturing customers loved our system so much, we referred them to Paperless Parts."

**JAMES TEUBER**

Partner, Re3dTech

## the fabricator

Technology Spotlight: A plan for better quoting in metal fabrication



"Our year-over-year revenue increased by more than 70%."

**ANDY REEVES**

Business Development & Department Manager, Vaupell



"We are now able to guarantee a 48-hour turnaround on all quotes."

**TOM GENDICH**

President, MetalMite



"We now spend less time engineering a quote and more time estimating one"

**DAN VILLEMAIRE**

President, C & M Precision Tech



Paperless Parts Partners with Online Metals To Expand Its Quoting Platform

Heartland



# Business Services



Heartland provides entrepreneurs with software-driven technology to manage and grow their business. The company serves more than 400,000 merchants nationwide, delivering trusted solutions for payment, payroll and human resources, point of sale, customer engagement and lending.

## Payment

**Countertop hardware:** Payment processing is all about flexibility these days. So Heartland supplies the hardware (or integrations to current hardware and software) needed for merchants to accept a wide variety of payment types. This ensures purchases can be made quickly and securely, regardless of the point of sale platform used.

**Mobile:** Turn your customer's smartphone or tablet into a payment terminal with a simple app and card reader. The app is compatible with iOS and Android phones and tablets and Amazon tablets. Heartland Mobile Pay also includes a companion merchant web portal, which provides access to reporting and administrative features.

**Online:** Heartland Ecommerce is a full-service web platform that allows merchants to set up an online web store for ordering, selling products and collecting consumer payments using the familiar "shopping cart" functionality.

**Bill payments:** With bill payments, merchants can send invoices online, offer customers the ability to pay online (using a Heartland-hosted web page) and even allow their customers to setup recurring payments. Payments can be submitted by credit card, debit card or ACH payment.

Randy Pumputis  
randall.pumputis@e-hps.com  
585-622-2993

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## Payroll+HR

Heartland takes the pain out of payroll with customizable employee payment, integrated timekeeping and tax reporting solutions. Application management, as well as new hire compliance and onboarding, are also part of the offering. When it comes to other HR matters like guidance, labor law posters and forms, Heartland provides merchants with support to navigate complex topics.

## Point of Sale

Heartland delivers a variety of POS solutions, including specialized platforms for restaurants, retailers and more. These platforms also offer merchants access to other tools and apps like inventory management and timekeeping.

## Customer Engagement

**Cultivating loyalty:** To help merchants cultivate long-term loyalty and maximize customer value, Heartland offers gift card and rewards programs. Merchants can also make use of Heartland's email marketing tools to help them drive traffic to their stores, and turn more customers into buyers.

**Understanding customers:** Heartland's analytics solutions help merchants analyze whether marketing and advertising dollars are being spent effectively by allowing them to view reports with customer breakdowns by postcode, the effect of weather on store traffic and comparisons with competitors.

**Keeping the conversation going:** Heartland has tools that allow merchants to manage their social media accounts and online reviews, enabling them to respond to issues and reply in real time.

## Lending

Heartland has partnered with the nation's largest small business loan marketplace to give merchants unprecedented access to capital. Heartland Capital's free 15-minute application gets merchants matched to small business loan options from 75+ leading lenders. Upon selecting the perfect loan for your business, you can get funded in as little as 24 hours.

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Only YOU Can Solve Your Skilled Talent Shortage



## NTMA Pre-Apprenticeship Program

NTMA's Pre-Apprenticeship program is designed to develop entry-level skills for employment at a manufacturing company and enhance the skills set for existing employees. Program participants will benefit by learning skills and behaviors that will lead to success as an apprentice at your shop. YOU will benefit by providing your company with the opportunity to attract and engage new talent in a cost-effective and flexible manner.

The NTMA Pre-Apprenticeship program combines four of our in-depth online training courses via NTMA-U with relevant reading material, hands-on exercises, and either the physical parts or the blueprints to make the physical parts for the hands-on exercises.

### Topics covered:

- Basic blueprint reading and shop math
- Quality processes and procedures
- Manufacturing processes

- Manual and electronic measuring instruments
- Basic shop equipment operation

Visit <http://tinyurl.com/NTMA-PreApp> for more information.

For questions or to get started, contact Bill Padnos at [bpadnos@ntma.org](mailto:bpadnos@ntma.org).

# HOW MUCH CAN YOU SAVE WITH VERICUT FORCE OPTIMIZATION?

## FORCE OPTIMIZATION - MACHINE SAVINGS CALCULATOR

Hourly Machine Cost \$  
(total burden)

0 50 100

Number of Machine Tools

5

Weekly Machining Hours

80

Estimated Reduction in Machining Time  
Reduce machining time by as much as 15-25% or more

25% (typical reported savings)

ANNUAL MACHINE SAVINGS

**\$520,000**



## FORCE OPTIMIZATION - CUTTER SAVINGS CALCULATOR

Hourly Cutter Cost \$  
(average cutter cost/cutter life hours  
e.g. \$100/1 hour)

0 50 100

Number of Machine Tools

5

Weekly Machining Hours

80

Estimated Increase in Cutter Life  
Extend the life of your cutters up to 100% or more

+50% increase

ANNUAL CUTTER SAVINGS

**\$692,640**



Calculate your own savings at: [cgttech.com/force-calculator](http://cgttech.com/force-calculator)

- Reduce machining time by 15-25% or more -
- Increase cutter life and improve surface finish -
- Optimize ANY CAM or manually generated tool path -

***Optimize. Save. Every time.***

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**CGTECH.com**  
**VERICUT®**



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## **Manufacturing America's Future**

**Have an interesting story you would like to  
share with other NTMA members?**

Each issue of The Record will feature one or more stories  
from members that fit the month's theme.

The submission deadline will be the first  
of the month prior to the publication date.

Email to Kelly LaMarca at [klamarca@ntma.org](mailto:klamarca@ntma.org).

**Upcoming Record Themes:**

**September**  
MFG Day

**October**  
Threats to Industrial Base

**November**  
Value of Membership

**What's Your Story?**

