Automation

Industry Executive Explains Why the Future of Manufacturing Will Be Human-Machine Collaboration, Not Robots Replacing Human Workers [Q & A Interview]

Lindsay Gilder | Aug 11, 2020 | **Share:**

Welcome to Thomas Insights — every day, we publish the latest news and analysis to keep our readers up to date on what's happening in industry. Sign up here to get the day's top stories delivered straight to your inbox.

It's no secret that industry, specifically manufacturing, is moving in the direction of automation. The technology has proven its worth in nearly any type of facility; it makes processes more efficient, makes production more effective, and provides business leaders with data they can use to continue to improve production at their facilities.

However, automation adoption has come with a rather nervewracking possibility: Industry workers could be replaced with robots. However, Dr. Prasad Akella, CEO and founder of Drishti, a provider of AI-powered video analytics and traceability software to improve productivity and quality in manufacturing facilities, sat down with *Thomas Insights* to assure us that this is most definitely not the case.

The Cobot Pioneer

According Drishti's website, Dr. Akella is one of the pioneers of cobots; he was part of the team behind developing the first cobots for General Motors in the 1990s. As an industry powerhouse since the beginning of collaborative robots, Dr. Akella believes that advanced robotics will safely am lue within manufacturing facilities.

"Lo everyday life: You use spell check to nudge you if you've made a mistake, and Waze to tell you ou're still the one making the ultimate decision, but you're using technology to help guide you loing, too."

We rishti is changing industry as we know it, especially after a $25 million Series B funding rou tion in manufacturing.

Q&A with CEO and Founder of Drishti

Thomas Insights: What led you to a career in industry, and later to establish Drishti?

Dr. Prasad Akella: "In 1994, I was hired from Japan by General Motors to lead an effort that created the world's first collaborative robots, or cobots. Over six years, I worked with colleagues and several manufacturers — and everyone in their factories, from line associates, to plant managers — to understand the manufacturing ecosystem and solve an important problem: ensuring the health and safety of the line associates while enabling them to build quality products.

While on the plant floor, I made several observations:

1. **A factory floor is very complex:** Done right, it's a ballet. Every piece is orchestrated to influence the next. If one part breaks, the show cannot continue on cue.
2. **People in assembly were largely neglected by tech, and in need of innovation:** While the robots on the floor were state of the art, the people were neglected. Methodologies to gather data on the assembly line dated back to Henry Ford.
3. **Line associates want to do good work:** Many people erroneously assume that factory workers are unmotivated. That thinking couldn't be further from the truth. Line associates want to be heard, contribute, and solve problems.
4. **The collaboration of man and machine leads to better results:** In cobots, we took cognition of man and married it with the power amplification of the robot system. With Drishti, we're taking the dexterity and flexibility of humans and empowering them with the intelligence of a learning machine. It's basically the same concept in reverse.

I built my post-GM career and skill set by moving between large enterprises and startups — including co-founding Spoke Software, where we created business social networks as a market category — and across functions, from sales and marketing to product building. In 2016, I discovered how far computer vision and artificial intelligence had advanced over the last 25 years, and I saw a future for manufacturing that I wanted to make a reality: AI-powered production."

TI: What does Drishti mean, and why did you choose it as the name for your business?

PA: "Drishti is the Sanskrit word for 'vision,' and it has a double meaning for our company. First, the literal: We use computer vision to capture human actions and feed the neural networks that create our products.

Second, the figurative: It reflects the long-term vision we see for Drishti to fundamentally change the way assembly lines function."

TI: How does Drishti work?

PA: "Conceptually, Drishti is simple: We digitize human actions using computer vision, then turn those actions into data using machine learning. Because we focus on entire assembly lines and whole plants instead of single stations, we're able to shed light on areas for wholesale process improvement versus spot changes.

But in practice, what we're doing is tough! This is precisely why methodologies for measuring human actions haven't evolved beyond stopwatches and clipboards.

You're probably familiar with basic object recognition — you show a neural network enough images of a cat, and eventually, it can distinguish between a cat and a non-cat on its own. Krishnendu Chaudhury, my co-founder, took this idea of object recognition orders of magnitude further and developed 'action recognition' — our proprietary computer vision and deep learning systems look at video streams and extract information from these streams, just like Siri extracts information from audio streams. Not surprisingly, video is much harder than audio!"

TI: How did you come to the realization that technology is best used alongside human operators instead of replacing them?

PA: "As with many things in life, it's a gradual realization. My Ph.D. thesis was on designing and controlling human-like robot hands, and my mindset was that robots would take over the world. The reality of robotics dawned on me when I got to GM and realized that robots were really blind, largely anchored, and hard to reprogram. There was so much that they could NOT do.

Our work on cobots and intelligent assist devices taught me that the only choice was to get human-machine collaboration going. And though some pec n the not too distant future, there's a pretty impressive and growing group of experts behind me, nans in manufacturing were underrated after spending $160 million trying for a fully aut

App table technology company in the world, and arguably the most technologically advanced firm s. Apple has repeatedly tried to build machines to build its machines, but in every case bar its r uman beings instead of robots.'

In f reessen Horowitz's Frank Chen on the a16z podcast a while back on this topic. So we are in goo o stay.

Look at the ways machines already augment humans in everyday life: you use spell check to nudge you if you've made a mistake, and Waze to tell you the fastest route to your destination. You're still the one making the ultimate decision, but you're using technology to help guide you to the best possible outcome. That's what Drishti is doing, too."

TI: What are your goals for Drishti, especially after recently closing a $25 million Series B funding round?

PA: "Ultimately, we want our product to accomplish two goals:

1. We want manufacturers to see broad improvements in terms of quality, productivity, training, standardized work adherence, etc. Every manufacturer with whom we work has had problems with at least one of those areas in the past. We are providing solutions to those industry-pervasive issues and helping manufacturers see double-digit percentage point improvements. And they don't need to hire data scientists or work from inscrutable spreadsheets — Drishti has a series of user-friendly dashboards that give near real-time updates.
2. We want to empower the worker on the assembly line. Going back to my observations from GM, where I noticed just how committed line associates were to doing good work and making a difference, Drishti empowers that line worker to either train and improve on his own through video, or to develop better ways of accomplishing a task and being recognized for it.

So many startups don't make it this far, and to close funding — via Zoom — in the midst of a global pandemic, economic recession, international protests, and other disruptors is a real testament to the faith our investors have in what we're building.

We have spent the last two years really getting our product to be as robust, user-friendly, and data-rich as possible. Now we are focusing on bringing Drishti and the benefits it drives to manufacturers around the globe, starting with North America. That doesn't mean we're done with product development — we rolled out a new release just a few weeks after the funding closed — but we're putting a big investment into growth: driving sales, ensuring adoption and making sure our customers are satisfied."

TI: Talk about your predictions for the next era of manufacturing, including "AI-powered production." How will human operators play a role?

PA: "Manufacturing has been defined by three distinct eras:

- **Craft,** where an artisan created unique and fully built products, one at a time (pre-1908).
- **Mass,** where the standardization of parts enabled products to be produced at scale (Ford Model T, 1908).
- **Lean,** where waste is minimized in manufacturing systems while ensuring that only what is required is built (Toyota, 1948).

Drishti is committed to driving the fourth era of manufacturing: AI-powered production. In this era, the perks of the previous three eras are kept and enhanced using data. And at the center of all of this is the human being, who interprets and acts on the data, working with the machine to extend the value they uniquely create.

A search engine and an MRI machine are examples I often use to speak to the future. Incredibly sophisticated machines, easily used by the average Joe, yet ridiculously effective in directing the human's attention to the core information.

Similarly, Drishti processes gobs of information using the most sophisticated computer vision and deep learning networks, yet presents everyone in the manufacturing ecosystem, from the plant manager to the line associate, the right information at the right point in time so he or she can decide the next best course of action.

It's an exciting time to be in manufacturing! There is so much to do to improve life on Earth."

Image Credit: Provided by Drishti

Share

Why Remanufacturing Is the Underappreciated Answer to OEM Customer Value Creation [Part 1]

Next Story »

How Boston Dynamics Is Leading the Robotics Revolution

4 Automation
6 Robots Roaming New York City [A Byte Out of the Big Apple]

5 Automation
8 Examples of Cobots in Everyday Life

Related Resources

Daily Bite
The History of April Fools' Day

Daily Bite
Where Is the Space Tesla?

Daily Bite
Is This a 3D Printer for Ants?

Daily Bite
Fish Scales Are in This Unexpected Product

Daily Bite
The Sugary Story Behind Sweetheart Candies

Site Maps

Categories

Featured Companies

Featured Categories

Featured Products

Featured Catalogs

About

Thomas Brand Center

Careers

Press Room

Sign Up

Sign In

Contact

Help Center