



25 Breakthroughs in Georgia



NO. 20:

Robots that craft clothing to order

Smart machines have already outpaced their human creators in sweeping, mopping and competing on “Jeopardy.”

Now, a Georgia Tech machine innovation means we may soon add “sewing” to the list.

While most manufacturing is automated, humans are still best at handling fabrics, aligning materials and keeping a seam straight. But the ingenious “sewbots” developed by retired Georgia Tech professor Steve Dickerson are shifting that paradigm. They can even stitch a seam in a perfect circle.

Dickerson’s invention relies on high-speed photography. His smart sewing machines capture up to 1,000 frames per second, manipulating each photo automatically to enhance contrast.

Using these high-contrast images, the machine counts individual threads in the fabric to make complex calculations on fabric tension and positioning – and then it responds on the fly. Underlying the artificial intelligence is a robotic system that grabs and positions each piece of fabric, holding it in place with vacuum suction.

Dickerson patented the sewbots in 2012 and founded a company, Softwear Automation. Now led by CEO K.P. Reddy, Softwear is expanding operations and faces a promising future. The company’s sewbot technology could help bring textile manufacturing back to American shores, creating better jobs for U.S. workers as managers and technicians who supervise the sewbots’ handiwork.

We may no longer beat the ‘bots at sewing. But inventors like Steve Dickerson still have the edge on human ingenuity.

“25 Breakthroughs in Georgia” celebrates 25 years of the Georgia Research Alliance. GRA expands research and commercialization capacity in Georgia’s universities to launch new companies, create high-value jobs and transform lives. More: GRA.org