



LineStream Technologies signs licensing deal with Texas Instruments

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By **Robert Schoenberger, The Plain Dealer**

CLEVELAND, Ohio -- **LineStream Technologies**, a company founded to commercialize technology developed at **Cleveland State University**, has signed a major licensing deal with industrial giant **Texas Instruments**.

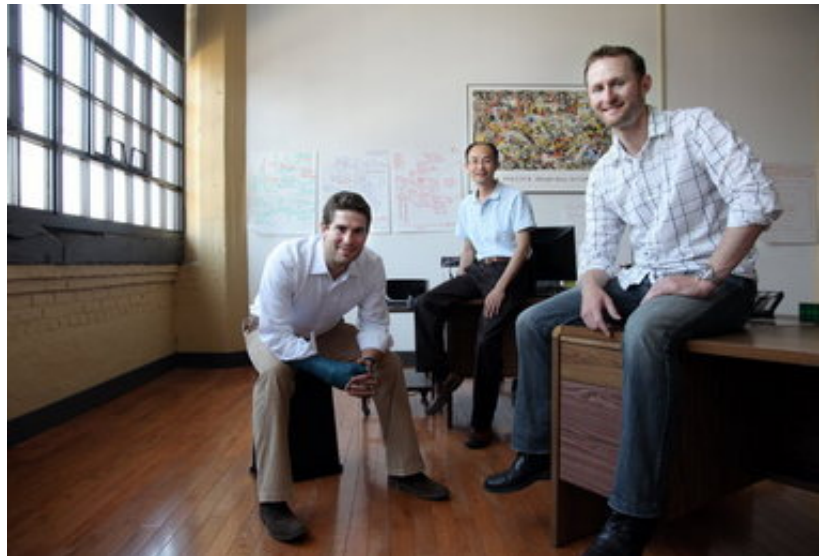
"TI's endorsement of this technology underscores the enormous potential for its rapid adoption, which can support company growth and bring more skilled jobs to the Cleveland area," said LineStream President Dave Neundorfer.

LineStream writes software that controls industrial robots and other types of automated machinery. **CSU professor Zhiqiang Gao** has been developing the technology for more than a decade.

Neundorfer said machines in most modern factories are inefficient. Robots pause while performing some tasks, often moving arms up and down next to their targets as they struggle to follow their programs. The culprit can be vibration in the system, buildups of dust or something as simple as higher temperatures.

"Manufacturing plants are facing thousands of changing variables all of the time," Neundorfer said. LineStream's control software tracks when machines are running into problems and adjusts operations, he added.

"In real time, it knows when your equipment is working harder than it has to, and it can cancel the effects of the disturbances," Neundorfer said. Controlling for those problems early cuts power use and should extend the lives of expensive machines, he added.



Lisa DeJong, The Plain Dealer

Dave Neundorfer, president of LineStream Technologies; Gang Tian, CTO, and Matt Zilli, vice president of marketing, inside their Cleveland offices. LineStream Technologies makes software that reduces the energy usage of electrical motors and industrial equipment. They just signed a licensing deal with Texas Instruments that could put their software in washing machines and electric cars.

Cleveland industrial producer Parker Hannifin was one of the early testers of the software, installing it to control equipment at a hose-extrusion plant in Ravenna about a year ago. Parker general manager Mark Gagnon said that when the system started, power readouts "looked like they fell off a cliff, reducing power consumption by 57 percent."

Neundorfer said the deal with Texas Instruments is for a separate but similar system. LineStream's SpinTAC software uses the same basic approach of tracking variables and compensating for disturbances to improve the efficiency of spinning devices.

Texas Instruments has licensed the system for use in the control chips used in motors for everything from washing machines to medical devices to electric cars.

"Smarter motors can save huge amounts of energy and cost, so TI is working to make sure developers have the microcontrollers, tools and software they need to get to market as fast as possible," Chris Clearman, worldwide manager of motor solutions for Texas Instruments, said in a written statement.

Clearman added that Texas Instruments is evaluating LineStream's products to see how best to include them in future products.

Neundorfer said he sees big sales potential from the agreement.

"Right now, for many of TI's customers, their biggest challenge is tuning and optimizing controls to get [devices] to do what they want them to do," Neundorfer said. He added that his company's SpinTAC software should make motorized devices easier to tune and more energy-efficient.

The multi-year licensing agreement has a short-term exclusive period with Texas Instruments. The value of the licensing deal will depend on how many chips TI sells using the technology -- a figure neither company could predict.

Neundorfer said the exclusivity applies only to spinning products. LineStream can license the software to manufacturers making other types of machines without violating the agreement.

"There's an incredible opportunity here to work with multiple licensing partners," Neundorfer said.

LineStream has three full-time employees at its Cleveland headquarters now. Neundorfer said he hopes to hire 15 engineers and scientists over the next year as the company grows.

"To have technology that was born out of Cleveland State University that has this much potential in so many different industries is inspiring and significant," Neundorfer said.

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