



Our global customers fly here from China and Spain, so they get to see Buffalo. And as we hire people, they buy houses and cars and pay utilities, so **we have a direct local impact, as well.**

**Ward Thomas,**  
*President and CEO,*  
**Sentient Science**



# Sentient Science

## Found strength in UB's computational expertise and custom solutions

### COMPANY NAME

Sentient Science

### FOUNDED

2011

### LOCATION

Buffalo, NY

### INDUSTRY/BUSINESS

Utilities

### ABOUT THE COMPANY

Sentient Science, a trusted third party to operators, provides materials science based computational testing on major rotating systems and key components in the wind energy, aerospace and transportation markets.

### WNY EMPLOYEES

50 employees

### WEBSITE

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



### How UB builds a winning partnership

The company created a multi-physics computer program to predict when rotating machines will fail. That mission connects with two of UB's areas of expertise: computer programming and materials science. The viability of Sentient's product, called DigitalClone, has been proven accurate by NASA and manufacturers such as Boeing, GE and Honeywell. The predictive system has been installed on 20,000 wind turbines, and the company expects to reach 100,000 turbines in the future.

By using it, companies can greatly extend turbine lifespan from about eight years to 30 years, said company President and CEO Ward Thomas. Sentient Science was wooed by numerous universities but selected UB in 2011. The company uses the supercomputer located in downtown Buffalo within the Center for Bioinformatics and Life Sciences (CBLS). "We would not be able to commercialize our technology, especially at the rate and effectiveness we have, without the University at Buffalo's Center for Computational Research," Thomas said.

### How industry wins

The company's need for significant advanced computer power to run its predictive programs made UB's Center for Computational Research (CCR) a vital partner. The CCR provides access to its 3,400 processor-computing infrastructure to run hundreds of simulations, putting the company at the forefront of the industry.

### How the region wins

The presence of Sentient Science has drawn attention to the region's sophisticated capabilities. "Our global customers fly here from China and Spain, so they get to see Buffalo," Thomas said. "And as we hire people, they buy houses and cars and pay utilities, so we have a direct local impact, as well."



Center for Computational Research for Supercomputing Capabilities



Small Business Innovation Research (SBIR) Program with CMI Faculty Members



UB's Department for Materials Design and Innovation (MDI)



Serves on CMI's Industrial Advisory Board



UB Center for Advanced Technology Award Recipient



Advanced Manufacturing Career Experience Program Interns

**Everyday victories add up to a winning partnership.**