



Nobel Prize Researchers Rely on Nor-Tech for Massive Computing Requirements

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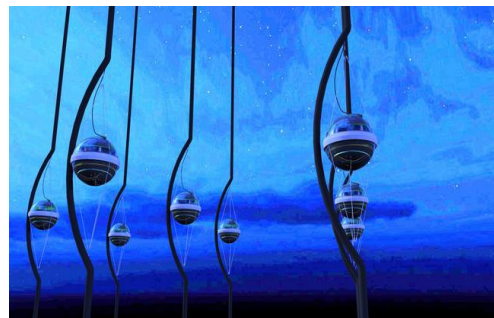
Computing Facilities Manager, University of Wisconsin, Madison

Their Challenge

The 2026 Nobel Prize winning IceCube Neutrino Observatory, which examines the cosmos from the vantage point of the South Pole, is the world's largest neutrino detector. It tracks these particles from the most violent astrophysical sources: events like exploding stars, gamma-ray bursts, and cataclysmic phenomena involving black holes and neutron stars. Its goal is to answer some of the most complex physics puzzles to date.

The international collaboration of 450 scientists, from 58 institutions in 14 countries, studies, among other things, the characteristics and origin of high-energy astrophysical neutrinos, cosmic rays, neutrino properties, and searches for beyond standard model physics.

When IceCube discovered astrophysical neutrinos in 2013, the sources were not known. However, evidence for neutrino emission from two other galaxies, has since been reported by IceCube. In 2023, IceCube also announced the discovery of neutrinos from our own galaxy.



IceCube Sensors Deep Within South Pole Ice

It's not surprising that this project requires an enormous amount of data collection, processing, and storage capacity. While IceCube researchers have been confident in the project's ability to solve physics enigmas, they relied on Nor-Tech to give them the processing power and storage capacity to do that.

The Computing Facilities Manager, for the University of Wisconsin, explained, "Our role as far as computing services for IceCube is mostly for data processing and data simulation-- processing the real data that streams in continuously from our sensors. We extract scientific results from that data and compare it with models and simulated data. In order to do that, we need a lot of computing power. Our main challenge involving Nor-Tech was that we needed continuous help building custom servers that would be optimized for our simulation needs."

He continued, "There are a lot of factors that play a role when simulating the interaction of particles with a complex detector and we had to build a model of our device in a computer that accounts for all of this. The simulation is essentially a computing program that contains the theory models and mimics nature. It allows us to validate and calibrate the information we are getting back from the sensors."

Nor-Tech Senior HPC Account Executive Tom Morton has been working with the Facilities Manager and other IceCube personnel for more than 10 years. “We have quite a bit of experience with research facilities,” Tom said. “The University of Minnesota was one of our first clients and then it just grew from there.”

Our Solution

Knowing how much power they needed, Nor-Tech engineers brainstormed a solution that was cost-effective without compromising capacity. “We developed and customized the product to be able to house 8 GPUs per compute node,” Tom explained.

The Facilities Manager said, “To me the highlight of our relationship with Nor-Tech has been their ability to accommodate our increasing GPU needs in an efficient and sustainable way.”

Their Success

IceCube continues to purchase a significant amount of GPU nodes, storage servers, and compute nodes. Nor-Tech conducts code-testing and sends a technician to help UW personnel integrate the equipment into their datacenter.

“Their capability of customizing the systems to our needs was important,” the Facilities Manager said. “I know that Nor-Tech does a lot of work behind the scenes to ensure that our system is always optimized. It provides us with an enormous amount of computing capacity for the budget that we have and I have to say that we are very satisfied. We have not had any performance issues and really no issues at all. Nor-Tech is a key partner for us.”

The Facilities Manager added, “We have recommended Nor-Tech and will continue to do so. In our community—there are 40 institutions working on this IceCube project. Every time I hear about other experimental physics installations with similar challenges, I do mention that we’ve had a very positive experience with Nor-Tech and their clusters.”

Tom summarized, “They relied on us for price-performance and that’s what we delivered.”

About Nor-Tech

Nor-Tech technology has powered research behind two Nobel Physics Prize-winning projects, including the 2026 IceCube Neutrino Observatory. They are also on CRN’s list of the top *40 Data Center Infrastructure Providers*. Nor-Tech engineers average 20+ years of experience. All of Nor-Tech’s high-performance technology is developed by Nor-Tech in Minnesota and supported by Nor-Tech around the world. The company is headquartered in Burnsville, Minn. just outside of Minneapolis. To contact Nor-Tech call 952-808-1000 or visit <https://www.nor-tech.com>.

Project Update Oct. 6, 2026

Francis Halzen, IceCube principal investigator, wins 2026 Physics Nobel Prize

In Stockholm, the Royal Swedish Academy of Science announced the 2026 Nobel Prize in Physics has been awarded to Francis Halzen, principal investigator of IceCube, “for decisive contributions to the IceCube Neutrino Observatory and the discovery of high-energy neutrinos of astrophysical origin.” Francis proposed and proved that ice could be used as a detection medium for high-energy astrophysical neutrinos and was a driving force behind forming the collaboration and establishing the observatory.