

Photonect imaging startup creates technology for greener data centers

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Rochester-based Photonect, an optics, photonics and imaging (OPI) startup spun out of the University of Rochester, is developing a laser adhesion technique that makes it faster, less expensive and more efficient for data centers to process and transit data.

Its laser-based adhesion method is used to attach optical fibers to photonic chips in optical transceivers, devices that enable the transfer of data to and from data centers. The technique can significantly lower data centers' power consumption and is half the cost and 10 times faster than traditional glue-based adhesion methods.

We caught up with Photonect's Co-founder and CEO Juniyali Nauriyal to understand the challenges her optics startup is working to solve and how Luminate NY, a NextCorps ac-



celerator program, is helping to bring the technology to market.

INEFFICIENT TECHNIQUES FOR CONNECTING OPTICAL FIBERS TO PHOTONIC CHIPS

There is a substantial market for Photonect's technology, considering the optical transceiver market is expected to reach \$17.7 billion by 2025. There are more than 2,700 data centers in the U.S. today and each is dependent on 100,000

or more optical transceivers. Within each optical transceiver, an optical fiber the size of a single human hair must be attached to a photonic chip. The razor-thin size of an optical fiber makes it difficult to precisely connect it to a chip and improper placement reduces its performance and increases power consumption.

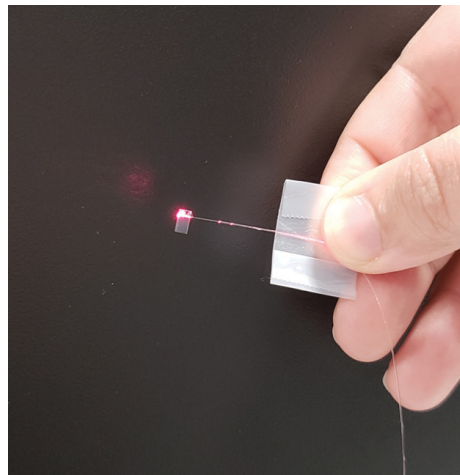
The need for better fiber placement techniques is escalating as

the optical transceivers market grows and as technology manufacturers begin looking for chips that require multiple fibers. There's also a need from national labs and defense projects that use photonic devices and require better performance.

**PHOTONECT CREATES
MORE POWER-EFFICIENT
PHOTONIC CONNECTIONS**

Six years ago, as a PhD student working with Professor Jaime Cardenas at the University of Rochester, Nauriyal began working on a solution to the problem of adhering optical fibers to photonic chips. Photonect was created from their research, offering new technology that makes fiber placement on a chip faster, more accurate and less expensive than current adhesion methods.

The technology uses a laser to attach optical fibers to photonics chips, eliminating the use of glue. A special component enables fiber placement with precision without compromising device performance. It sig-



nificantly improves packaging speed from 10 minutes to two minutes, increases power efficiency by four times and provides a 50 percent cost savings.

“Our technology will enable customers to package single- or multi-fiber devices with high efficiency, low cost and at high volumes, ultimately increasing production capacity across many industries,” said Nauriyal.

**LUMINATE AND ROCHESTER
OPI COMMUNITY PROVIDE
COMPETITIVE ADVANTAGE**

To further the development of its technology and speed commercialization, Photonect is one of ten companies working within Luminate NY's current cohort. This year they are

hoping to raise a first round of funding and leverage Luminate's expertise and extensive network to prepare to take their technology to market.

“For a startup from the University, gaining access to expert advice, coaching and mentoring is very important,” said Nauriyal. “Being a part of Luminate, the biggest accelerator for optics and photonics companies, gives us the best guidance, business skills and exposure to an extensive investor network that can provide us with a very strong competitive advantage.”

“With the help of Rochester's rich OPI ecosystem, Photonect is harnessing the power of photonics to transform data centers and significantly reduce power consumption needs. This will allow the industry to meet pressing demands to make data centers more sustainable and to support growing data needs from applications like cryptocurrency and artificial intelligence,” said Dr. Sujatha Ramanujan, managing director of Luminate.