Zigzag Networks
Interconnecting compute power in datacenters

In a nutshell
We improve AI compute clusters by developing advanced networking solutions that enable faster and more efficient communication between compute nodes. Our custom network switch technology allows large amounts of data to move quickly within data centers, cutting down idle time and boosting the performance of AI systems.

Why is our technology important?
Zigzag Networks introduces the Scalable Optical Switch (SOS) which replaces traditional electronic switches in AI clusters that struggle to handle today's complex AI models.

Traditional electronic switches rely on converting signals between light (optical) and electricity, a process that not only consumes a lot of energy but also adds delays (latency). SOS avoids this by handling data purely with light, cutting out the conversions, saving energy, reducing hardware costs, and speeding up data transfer.

SOS is designed to be flexible and future-proof, using advanced techniques to control light across multiple layers. This enables it to handle high volumes of data with fewer components and minimal power loss, making it perfect for AI systems that need to transfer large amounts of data. By incorporating proprietary AI-driven controls, SOS optimizes how light is directed in a compact form factor, increasing efficiency and making it easier to scale AI clusters as they grow.

The benefits of our solution

- Improve speed by removing latency due to opto-electronic conversions.
- Reduce CapEx, OpEx, and power consumption by eliminating optical transceivers and high-end electronics.
- Provide high port count scaling compared to emerging optical solutions that rely on large opto-electronic devices, which hamper their scalability.
- Support various switch modalities, including unicast, multicast, and wavelength switching, making it adaptable to future network architectures and implementations without requiring any changes to the physical layer once built.

Keywords
Optical Switching, Datacenters, Energy Efficiency, Scalable Connectivity, High-Density Datacenter Networks, Sustainable Compute

Founding Team
Niyazi Ulas Dinc and Mustafa Yildirim: Co-founders with PhDs in photonics, specialized in large-scale intelligent optical networks.

Prof. Demetri Psaltis and Prof. Christophe Moser: Advisors with extensive experience in optical technologies

Get in touch
We'd love to speak to you more about our project.
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