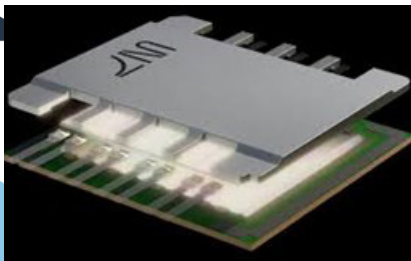# Lightmatter's Groundbreaking Technology and Expansive Intellectual Property Propel it to Dominance

Launched in 2017 by three MIT alums, Lightmatter is taking the technology field by storm. Founded on the principle that optical elements using light can perform integrated circuit chip communication and computing functions more efficiently, the company is addressing present day and future communication and computing needs by reducing the amount of energy consumed and capital needed to run AI algorithms.

The company's products, Envise, Passage, and Idiom, are answering the call for increased compute and communication speed, low energy density, and reduced chip heating, positioning Lightmatter to further the rapid growth of AI while minimizing its growing impact on the environment. Envise is the world's first general-purpose photonic AI accelerator accomplishing intensive compute operations utilizing light, instead of electronics. Passage is a wafer-scale programmable photonic interconnect that enables arrays of heterogeneous chips to communicate with each other at unprecedented speed, bandwidth, and efficiency. By harnessing the power of photonics, Lightmatter is empowering some of the largest cloud providers, semiconductor companies, and enterprises with the ability to achieve unparalleled levels of performance and energy savings.

Lightmatter's products are the first of their kind, and the team holds over 150 patent filings on its technology to build the most advanced photonic systems on the planet targeted at breaking through performance barriers in both computing and interconnect. The depth and breadth of their patent portfolio is unparalleled.

"Lightmatter has a very strong, deep, and growing patent portfolio covering its incredibly innovative technological advances, which presents a significant barrier to entry to all competitors," said Randy Pritzker, a patent attorney and chair of the Electrical & Computer Technologies Practice at Wolf Greenfield, one of the nation's top IP firms, who has represented Lightmatter since its inception. "We are thrilled to be working with Nick, Darius, and their brilliant team at Lightmatter, as we watch them disrupt the status quo and meet the needs of the changing marketplace during this AI revolution. Their strong IP will further differentiate them from the others."

Lightmatter will continue leveraging photonics to enhance computing functionality at greater speeds and with higher efficiency. The sky's the limit for this groundbreaking company as compute demand continues to accelerate in parallel with the demand for generative AI.

"The world requires new solutions to power the next great leaps in AI," said Nicholas Harris, CEO and co-founder of Lightmatter. "Lightmatter is answering that call, and we've seen incredible market momentum for Passage as we are working with top-tier data center and semiconductor partners for mass production."

In watching Lightmatter, we are witnessing the growth of the next industry-defining company.

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