



LightSolver All-Laser Technology Poised to Outperform and Outpace Quantum and Classical HPC

*Proprietary Pure Laser-based Processing Unit (LPU) Crushes the Competition in Early Trials;
First Products Entering the Market*

TEL AVIV, Israel -- May 9, 2023 -- Israeli start-up [LightSolver](#) today unveiled the first pure laser-based processing unit (LPU), a new computing paradigm that is poised to outpace and outperform quantum and supercomputers. This quantum-inspired solution utilizes all-optical coupled lasers that require no electronics to compute, enabling it to be as small as a traditional desktop computer while offering unrivaled scalability, low power requirements, and room temperature operation. Additionally, it is built from well-understood laser technology and commercially available components. LightSolver is available to businesses today as a software-as-a-service (SaaS), providing solutions to optimization problems previously considered unsolvable once they exceed a certain number of variables.

Today's businesses require innovative optimization solutions capable of solving complex multivariable challenges, such as financial portfolio and trading optimization, real time supply chain and logistics management, and complex material design, among others. Although quantum and supercomputers were created to tackle such problems, supercomputers seem to have reached their computational limit, and quantum computers are not yet scalable and practical. Both options also often require massive investments of time, money, space, power, and resources.

LightSolver is a revolutionary step in the high-performance computing field. Similar to the GPU that surpassed the performance of the CPU, LightSolver's proprietary LPU can outperform today's strongest classical supercomputers. The technology harnesses the natural properties of light to break the physical limits of electronics, outperforming traditional supercomputers and providing solutions to complex problems with greater speed, accuracy, and scalability.

"Solving complex optimization (NP-hard) problems requires a substantial amount of computational power, but by harnessing LightSolver's laser technology, businesses can tackle them with ease, outpacing current performance in fields such as logistics, finance, and manufacturing," said LightSolver CEO and co-founder Ruti Ben Shlomi, Ph.D. "With LightSolver, optimization problems can be solved at the speed of light, orders of magnitude faster than the alternatives."

LightSolver's LPU is a unique invention that innovatively leverages the ability of lasers to interfere and thus fulfill all the constraints of a given problem instantaneously. It works by converting a mathematical representation of a business problem into a physical logic formulation, then mapping this special formulation into "obstacles" within the optical path in which the lasers operate. Due to the wave nature of the lasers and the proprietary mapping, the laser beams converge into the desired solution. The solution is then measured and translated back to the business language of the user.

LightSolver has already proven the performance and accuracy of its all-optical approach in multiple published papers:

- In a [head-to-head challenge](#), LightSolver achieved 2X-1,000X faster Time-to-Solution (TTS) for solving Max-2-SAT problems compared to a leading deep learning solver.
- Taking on the [“3-Regular 3-XORSAT Challenge,”](#) LightSolver solved the problem in polynomial time, while all other state-of-the art classical and quantum computers solved it in exponential time.
- LightSolver developed a quantum-inspired algorithm for [sparse coding](#) that resulted in more accurate estimations than classical approximation methods.

“LightSolver solves hard optimization problems by translating business challenges to mathematical formulations, like an Ising model; however, it has the flexibility to implement other kinds of models that are not necessarily binary,” said LightSolver CTO and co-founder Chene Tradonsky, Ph.D. “Unlike quantum, our device is portable, operates at room temperature, and does not suffer from environmental sensitivity or need error correction protocols. Furthermore, LightSolver is entirely built with commercially available components and can scale significantly without increasing the size of the device.”

For more information on how to get started with LightSolver today, please visit <https://lightsolver.com/>.

About LightSolver

LightSolver is an Israeli technology company based in Tel Aviv that has successfully harnessed the unique physical properties of light to develop and build an innovative computing paradigm that is faster and more accurate and scalable than quantum or supercomputing. The company was founded in 2020 by PhD physicists Dr. Ruti Ben Shlomi and Dr. Chene Tradonsky from the world-renowned Weizmann Institute, and the 25-person team includes 17 math and physics PhDs. LightSolver has secured investment from TAL Ventures, Entree Capital, IBI Tech Fund, and Angular Ventures. Connect with LightSolver on [Twitter](#) and on [LinkedIn](#). For more information, visit <https://lightsolver.com/>.

Media Contact:

Seth Menacker

Fusion PR

lightsolver@fusionpr.com

###