



LightOn's Optical Processing Unit technology now ventures into accelerated scientific computing

PARIS, France, June 22, 2021 -- Paris-based LightOn, a manufacturer of photonics computing technology for large-scale AI, today announced at the Teratec Forum its expansion into the Scientific Computing market. With the release of the *lightonML 1.4* toolbox, LightOn's OPU hardware has been vastly enhanced beyond its original design to include the ability to perform Randomized Algorithms.



LightOn Appliance: the most powerful photonic AI/HPC co-processor on the market

Large-scale Scientific Computing is becoming increasingly central to industry and Science. Applications range from airplane or chip design to cosmology, material discovery and molecular dynamics in the fight against COVID-19. Running simulations at an ever-larger scale is essential to bring more discoveries to bear.

A recent US DOE sponsored workshop on Randomized Algorithms for Scientific Computing (RASC 2021), thoroughly surveyed the many activities around Randomized Algorithms for High Performance Computing (HPC) and deemed the contribution of randomized methods as « essential to the future of computational science and AI for Science.».

LightOnML 1.4 library now available on LightOn OPU hardware has been specifically designed for these randomized algorithms and enables information-revealing “sketches” for computation in the compressed domain. A selection of Randomized Numerical Linear Algebra (RandNLA) routines has already been developed, such as Singular Value Decomposition (SVD) or Trace estimation and presented in a recent preprint entitled [Photonic co-processors in HPC: using LightOnOPUs for Randomized Numerical Linear Algebra](#). For example, significant speedups are obtained for the problem of counting triangles in very large graphs - a solution useful for community detection on very large social networks.

Laurent Daudet, CTO and co-founder at LightOn, highlights the importance of these new features:

« This is a major release of LightOn’s OPU main library that opens up a wide range of technical and scientific opportunities. Only LightOn’s OPUs have the capacity to “sketch” up to 1Mb of data at once, literally at the speed of light, with a record-low 30 W power consumption. As a result, we believe that LightOn’s OPUs will become a key component in public and private research-led future HPC clusters.»

LightOnML 1.4 is available today on LightOn’s Appliance and Cloud.

About LightOn

LightOn provides high-performance Photonic Computing for some of today’s largest computing challenges in Transformative AI. Its groundbreaking technology unlocks Machine Learning models orders of magnitude larger than the state-of-the-art, by re-imagining the whole hardware and algorithmic stack. LightOn’s technology is currently available to a large community of users (Data Scientists, Machine Learning scientists and engineers) on-premises with the LightOn Appliance, or through the LightOn Cloud. Founded in 2016, LightOn is funded by Anorak Ventures and Quantonation and is headquartered in Paris, France.

Contact Information: contact@lighton.ai

All references to LightOn trademarks are the property of LightOn SAS. All other trademarks mentioned herein are the property of their respective owners.