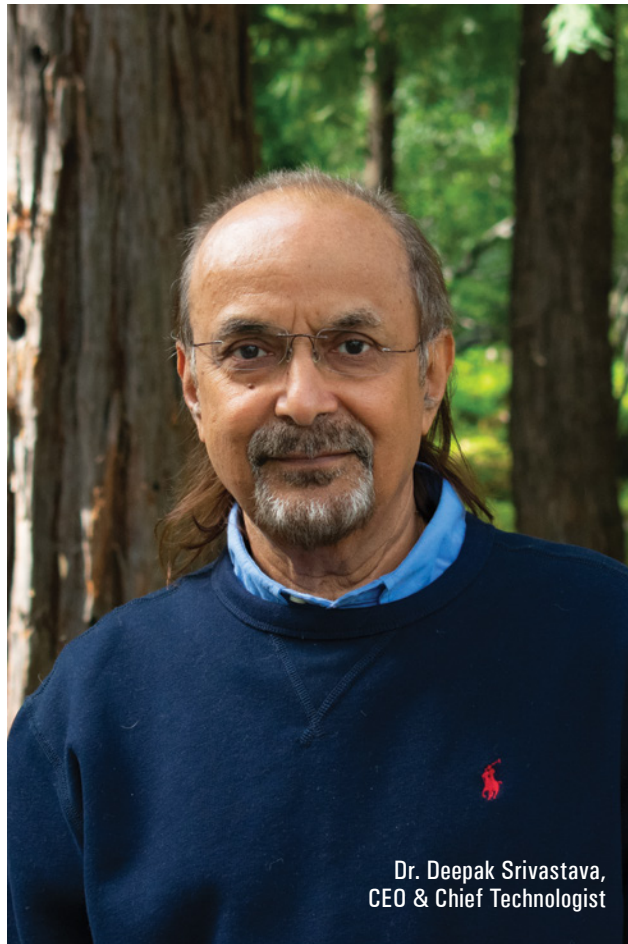




NuMorph AI

Neuromorphic AI: A Game Changer in Innovation



Dr. Deepak Srivastava,
CEO & Chief Technologist

Traditional AI models often rely on massive datasets requiring extensive computing power and cloud connectivity. These systems are inherently energy-intensive and costly, making them inaccessible to smaller and remote organizations or unsuitable for extreme edge environments with limited power and connectivity. Additionally, the dependence on globally sourced data raises concerns around privacy, ethical issues, and data sovereignty. The significant

infrastructure demands of these big AI models also pose environmental challenges, making them unsustainable for energy-efficient applications.

This situation calls for a transformative approach that mirrors how nature evolved biological systems process information—extremely low-power, highly efficient and adaptively to the local environment.

Enter NuMorph AI, an innovation-driven startup in Silicon Valley, pioneering bottom-up Neuromorphic AI and sensor technologies inspired by the intelligence of honeybees and insects. Just as bees and insects utilize highly efficient, low-power systems to navigate and process information in complex local environments, NuMorph AI applies these principles to its innovations and solutions. The company focuses on developing low-power, low-latency, and massively-modular Neuromorphic AI software integrated with vision sensors, like the complex eyes of honeybees, for applications to autonomous robotics, drones, IoT, and other edge or extreme edge mobile devices. NuMorph's bio-inspired technology thrives by processing extremely smaller, localized datasets, making it more efficient and adaptable—especially in environments with severe constraints on power, connectivity, and foot-print space.

“We are and will be proud to be among the pioneers taking Neuromorphic computing and AI into the next generation of sensors, products, and services,” says Dr. Deepak Srivastava, CEO and Chief Technologist of NuMorph AI.

Modular ERN-AI: A Nature-Inspired Revolution

NuMorph AI's patent-pending Modular ERN-AI (Evolutionary, Reconfigurable, Neuromorphic AI) architecture and software redefines artificial intelligence through efficiency and adaptability. Inspired by biological systems, this innovation significantly departs from the resource-heavy methods of traditional and all current big AI methods. The concept emerged during the COVID-19 pandemic when Srivastava observed the remarkable

intelligence of fruit flies and honeybees—creatures with highly efficient miniscule brains navigating complex environments for targeted tasks with exceptional precision.

This realization became the foundation of NuMorph AI's mission: to emulate nature's brilliance in technology. The company adopted a bottom-up approach to develop massively-modular small or micro-data trained Neuromorphic-AI model systems that could be made to function like interconnected “AI-Lego blocks” for scaled-up real world operations. This modular architecture and design ensures scalability and versatility across applications, including industrial automation, aerospace, healthcare for applications such as event-driven cameras, and GPS-free navigation.

A prime example of the application of NuMorph AI's innovation is its bio-inspired vision sensor platform. Mimicking the integrated complex-eye and brain-neurological system of a honeybee, this platform employs event-driven, low-power and low-latency vision sensing with 3600 situational awareness. Instead of continuously recording, as traditional CCTV remote monitoring cameras do, these sensors will sense and process only the critical events, significantly reducing on-board energy consumption and computational demands. This approach preserves storage space while maintaining performance, enabling applications such as future miniature autonomous drones, robotics, and industrial IoT systems to operate efficiently in noisy, real-world environments.

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Sustainability and Accessibility

NuMorph AI's advancements go beyond software and hardware. Its modular systems are designed to work with small, localized micro-datasets, giving businesses greater and flexible control over their proprietary information, evolutionary improvements, and reconfigurability for on the job learning and applications bio-morphic autonomous

systems in future. In the short term, this approach reduces costs, minimizes environmental impact, and ensures that AI solutions remain both accessible and sustainable.

Transforming the Future of AI

NuMorph AI envisions a future where AI mirrors the efficiency and diversity found in nature. Industries such as mining, urban surveillance, oil exploration, and health-care benefit from its edge AI computing and sensing systems. Bio-morphic autonomous drones and robots may operate seamlessly in tunnels, remote sites, and extreme environments on earth, moon, and mars without relying on cloud access. Event-selective complex-eye vision systems may focus on significant occurrences, reducing bandwidth usage and operational costs on one hand, and also be useful for damaged vision repair systems for elderly populations in human health-care.

Deepak Srivastava's highly accomplished and acknowledged experience at NASA has been instrumental in shaping his and NuMorph AI's pioneering vision and innovation-driven approach. With years of expertise in nanotechnology, Srivastava guided the bottom-up design and development of scalable and efficient intelligent nanomaterials and molecular-electronics devices, systems and applications. Observing the intelligence of fruit flies and honeybees inspired his belief that nature may provide a blueprint for creating similarly efficient solutions capable of complex tasks with minimal resources.

NuMorph AI's decentralized and modular ERN-AI systems address critical challenges such as energy efficiency, ethical concerns, and data sovereignty. Businesses increasingly demand AI solutions that operate independently of centralized systems, and NuMorph delivers with adaptable, efficient technologies.

Looking Ahead

The company has emerged recently out of stealth-mode with a small focused team to grow through strategic partnerships and raising seed funding, while protecting its innovations with patents and technical know-how. As global demand for low-power or extremely low-power and low latency AI solutions rises, NuMorph AI will be at the forefront, offering sustainable, tailored systems for diverse industries. With its vision for efficient and adaptable AI inspired by nature, NuMorph AI is shaping the future of artificial intelligence—paving the way for a more sustainable and resource-efficient world. 