

California, USA

AI INNOVATORS OF THE YEAR

NuMorph AI Inc.

Standing at the forefront of AI innovation, NuMorph AI Inc. is redefining what's possible in vision sensing and robotics through a revolutionary approach. By drawing inspiration from the natural efficiency and adaptability of honeybee neurology and compound eyes, Silicon Valley based company are developing an evolutionary and reconfigurable, analogue-AI software architecture that dramatically reduces size, weight, power-consumption and latency – by factors of 10-100 – while maintaining performance under realistic noisy conditions at the extreme edge. Rather than adapting the conventional digital big-AI frameworks for constrained environments, they are building an entirely new scalable multi-modal analogue-AI architecture from the bottom up.

This architecture is bio-inspired and evolutionary driven, resulting in massively modular analogue-AI or analogue Neural-Network models, like "AI-Lego-Blocks", which can combine together to give the sensing and analysis functionalities based strictly on the real-time local environment they face. Their resulting Evolutionary, Reconfigurable, Neuromorphic-AI (ERN-AI@) software modules reflect the parsimonious morphology of Neuromorphic Edge Sensing Arrays (NESA@) vision like in Honeybees, and can be customised for use in aerospace robotics, drones and remote monitoring-surveillance systems, where low power, size and latency are critical. The use of honeybee-inspired models allow the system to perform in environments rife with interference and limited resources.

The judging panel was particularly impressed by the push for further developments and increased innovation that has brought NuMorph AI to the cutting-edge of their burgeoning sector. One of these AI specialist's most groundbreaking contributions is their "bottom-up" autonomous vision sensor software and hardware platform architecture engineered to function at the extreme edge — not connected to any centralised computing infrastructure. This makes it ideally suited for a broad range of applications: from precision farming, mining and gas-pipeline inspections, to wearables, health monitoring and immersive technologies such as AR, VR, and XR. In every case, the company's seed-stage technology has potential to offer significant improvements over conventional Big-AI systems, especially in terms of power consumption, processing speed and reliability under real-world conditions.



NuMorph AI pioneers bio-inspired analogue-AI based ultra-low power, size and latency vision arrays for drones, robots, wearables and other edge devices.




Bio-Inspired Design
Drawing inspiration from insect neural systems

Power Reduction
Achieving as much as 95% reduction in power consumption

Event-Driven Computation
Implementing event-driven processing for efficiency



Pioneering a Massively-Modular Neuromorphic-AI
Software for Vision Sensor Fusion Platform Applications

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