How a Boston Startup Plans to Poach Poachers in Africa Using Intelligent Drones

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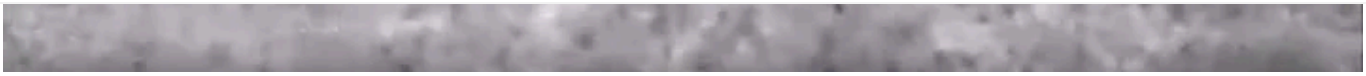

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Across the African savanna, 25,000 elephants and 1,000 rhinos are killed by poachers each year, according to some estimates. At this rate, they'll be extinct within two decades.

To combat this crisis, Neurala, a Boston-based startup, is bringing stealth, speed and scale to the fight in the form of deep learning-powered drones.

By putting intelligent eyes in the sky, Neurala, a member of the NVIDIA Inception program for young, AI companies, aims to better track endangered animals and target illegal hunting activity.

Working the Night Shift

Neurala's work is in support of the Charles A. and Anne Morrow Lindbergh Foundation, a nonprofit dedicated to balancing the effects of human development on the environment through technology.

The company's drones use on-board Jetson TX1 AI modules to recognize animals and poachers from video taken by the drone's cameras. Using infrared light, the drones can be deployed overnight to monitor on-the-ground activity in areas occupied by at-risk animals.

Neurala CEO Max Versace said GPUs embedded onto the drones give his company's application an edge because they enable AI processing at great speed and precision.

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"I believe the GPU has a particular application domain when the application requires power users," said Versace, who also serves as director of Boston University's Neuromorphics Lab. "You need the GPU when you need to be very precise and very fast."

Analyzing the video in real time, the AI identifies poachers who might be near the animals and alerts a human analyst, who can call in local rangers if hunters are detected.

AI also helps the analysts do their job. Versace said it's hard for human operators to review video for extended periods of time; however, the AI's work filtering data and reporting back, makes the job faster and more efficient.

Instead of "having one human operator looking at the screen for eight hours every night, we can have one human operator managing 10 different drones until the AI rings an alarm for poachers nearby," Versace said.

The system's initial deep learning training used Neurala's proprietary framework built on top of NVIDIA's cuDNN, a GPU-accelerated library of primitives for deep neural networks, and a NVIDIA Tesla P100 GPU accelerator.

Timeline of Deployment

The drones are set to deploy by January, depending on the amount of funds the Lindbergh Foundation is able to raise to sustain the cause.

Versace said his belief that AI and drones can be used for good motivated him to support the foundation's efforts.

"Sometimes AI gets a bad name, but I believe AI is as good as the human who programs its use," Versace said. "I wanted to make it a point that AI and drones could be used for the good of humankind, or animalkind for that matter."

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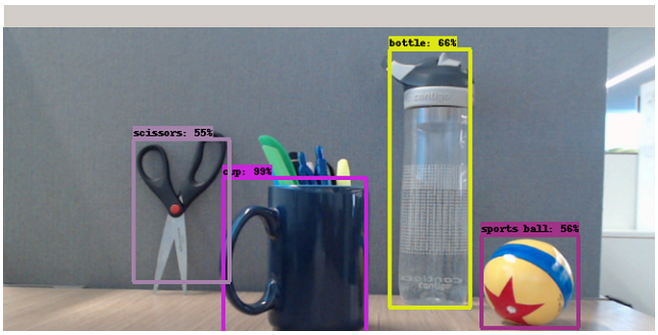

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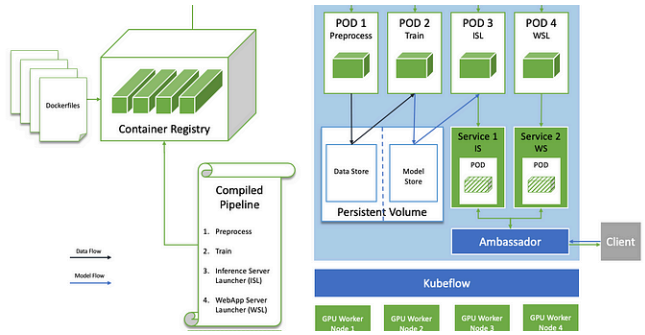

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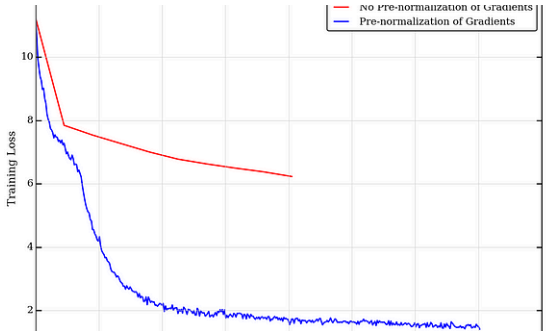

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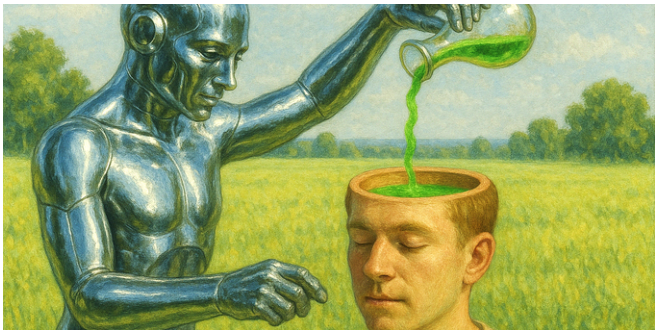

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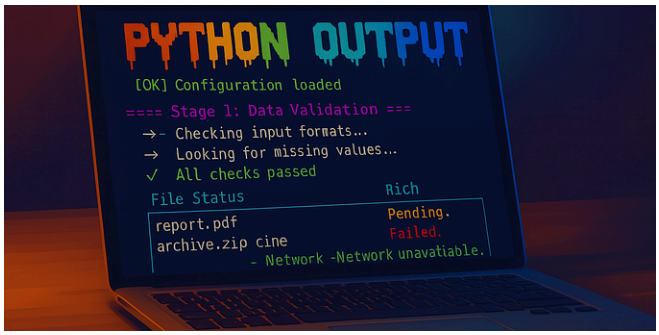

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