Souped-Up Auto Quotes: ProovStation Delivers GPU-Driven AI Appraisals

French startup unveils three AI-driven inspection stations with retailer Carrefour.

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Vehicle appraisals are getting souped up with a GPU-accelerated AI overhaul.

ProovStation, a four-year-old startup based in Lyon, France, is taking on the ambitious computer-vision quest of automating vehicle inspection and repair estimates, aiming AI-driven super-high-resolution stations at businesses worldwide.

It recently launched three of its state-of-the-art vehicle inspection scanners at French retail giant Carrefour's Montesson, Vénissieux and Aix-en-Provence locations. The ProovStation drive-thru vehicle scanners are deployed at Carrefour parking lots for drivers to pull in to experience the free service.

The self-serve stations are designed for users to provide vehicle info and ride off with a value report and repair estimate in under two minutes. It also enables drivers to obtain a dealer offer to buy their car as quickly as within just seconds — which holds promise for consumers, as well as used car dealers and auctioneers.

Much is at play across cameras and sensors, high-fidelity graphics, multiple damage detection models, and models and analytics to turn damage detection into repair estimates and purchase offers.

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Tapping into NVIDIA GPUs and NVIDIA Metropolis software development kits enables ProovStation to scan 5GB of image and sensor data per car and apply multiple vision AI detection models simultaneously, among other tasks.

ProovStation uses the NVIDIA DeepStream SDK to build its sophisticated vision AI pipeline and optimizes AI inference throughput using Triton Inference Server .

The setup enables ProovStation to run inference for the quick vehicle analysis turnarounds on this groundbreaking industrial edge AI application.

ProovStation is deploying its stations at a quick clip. That's been possible because founder Gabriel Tissandier in the early stages connected with an ideal ally in Cedric Bernard, whose family's Groupe Bernard car dealerships and services first invested in 2017 to boost its own operations.

Groupe Bernard has collected massive amounts of image data from its own businesses for ProovStation prototypes. Bernard left the family business to join Tissandier as the startup's co-founder and CEO, and co-founder Anton Komyza joined them, and it's been a wild ride of launches since.

ProovStation is a member of NVIDIA Inception , a program that accelerates cutting-edge startups with access to hardware and software platforms, technical training, as well as AI ecosystem support.

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ProovStation has deployed 35 scanning stations into operation so far, and it expects to double that number next year. It has launched its powerful edge AI-driven stations in Europe and the United States.

Early adopters include Groupe Bernard, U.K. vehicle sales site BCA Marketplace, OK Mobility car rentals in Spain and Germany's Sixt car rentals. It also works with undisclosed U.S. automakers and a major online vehicle seller.

Car rental service Sixt has installed a station at Lyon Saint-Exupery Airport with the aim of making car pickups and returns easier.

"Sixt wants to really change the experience of renting a car," said Tissandier.

ProovStation has built up data science expertise and a dedicated team to handle its many specialized datasets for the difficult challenge of damage detection.

"To go from a damage review to a damage estimate can sometimes be really tricky," said Tissandier.

ProovStation has a team of 10 experts in its AI Super Factory dedicated to labeling data with its own specialized software. They have processed more than 2 million images with labels so far, defining a taxonomy of more than 100 types of damages and more than 100 types of parts.

"We knew we needed this level of accuracy to make it reliable and efficient for businesses. Labeling images is super important, especially for us, so we invented some ways to label specific damages," he said.

Tissandier said that the data science team members and others are brought up to speed on AI with courses from the NVIDIA Deep Learning Institute .

ProovStation scans a vehicle with 10 different cameras in its station and takes 300 images — or 5GB of data — for running on its detection models. NVIDIA GPUs enable ProovStation's AI inference pipeline in 90 seconds to provide detection, assessment of damages, localization, measurements and estimates. Wheels are scanned with an electromagnetic frequency device from tire company Michelin for wear estimates. All of it runs on the NVIDIA edge AI system.

Using two NVIDIA GPUs in a station allows ProovStation to process all of this in high-resolution image analysis for improved accuracy. That data is also transferred to the cloud so ProovStation's data science team can use it for further training.

Cameras, lighting and positioning are big issues. Detection models can be thrown off by things like glares on glass-shiney cars. ProovStation uses a defectometry model, which allows it to run detection while projecting lines onto vehicle surfaces, highlighting spots where problems appear in the lines.

It's a challenging problem to solve that leads to business opportunities.

"All of the automotive industry is inspecting cars to provide services — to sell you new tires, to repair your car or windshield, it always starts with an inspection," said Tissandier.

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