

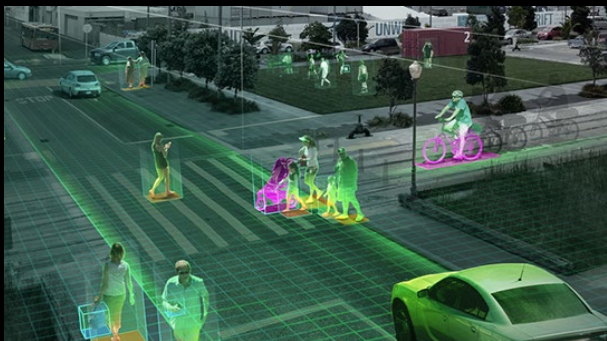
HPC AT WORK GPU COMPUTING IN THE ENTERPRISE

Marc Hamilton, NVIDIA



AI IS FUELING GLOBAL INDUSTRIES

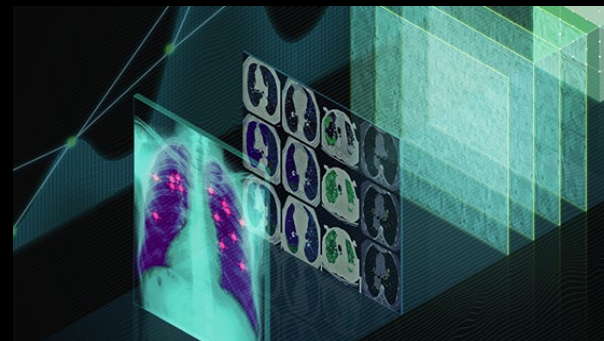
Multi-Trillion Dollar Global Industries Turning to AI



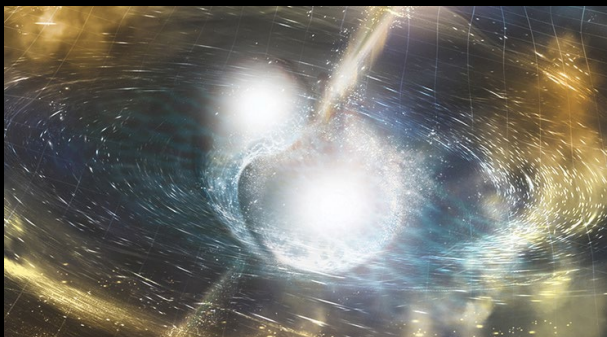
SMART CITIES



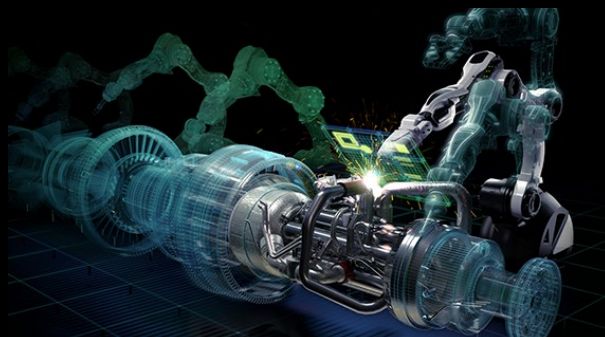
PUBLIC SAFETY



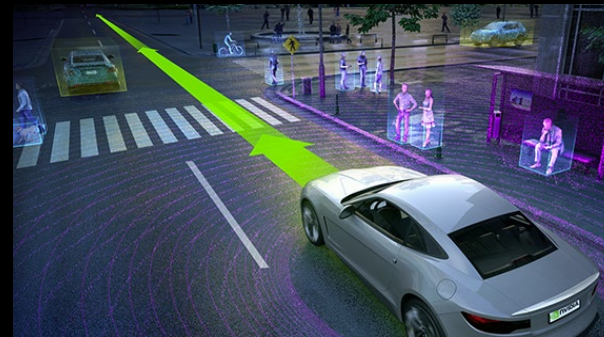
HEALTHCARE



STARTUPS



INDUSTRIAL



TRANSPORTATION

NVIDIA ACCELERATED COMPUTING

NVIDIA GPU CLOUD

GAMING

HPC

TRANSPORTATION

HEALTHCARE

PRO VIZ

AI

ROBOTICS

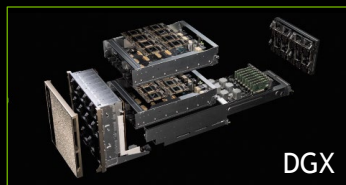
AI IOT

CUDA-X

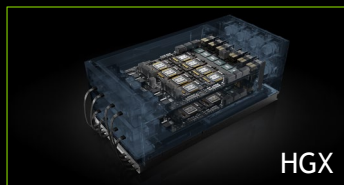
CUDA



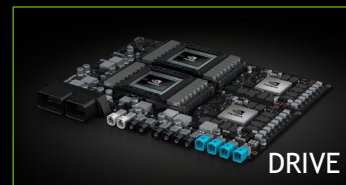
RTX



DGX



HGX



DRIVE

THE PROMISE OF AI

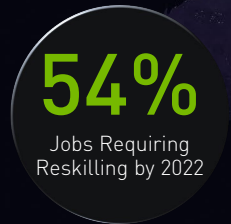
Increased access to healthcare

Improved patient outcomes

Safer cities

Safer & more efficient transportation

Intelligent manufacturing



NGC APPLICATION ACCELERATION STACKS

Wealth of Accelerated Apps Maximize Datacenter Throughput, Utilization, Efficiency

SCIENCE



DATA ANALYTICS



DEEP LEARNING



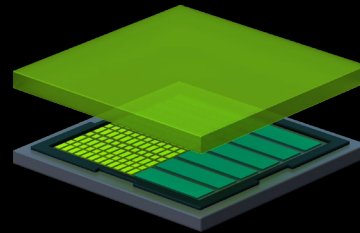
MACHINE LEARNING



HYPERSCALE INFERENCE



RENDERING & VIZ

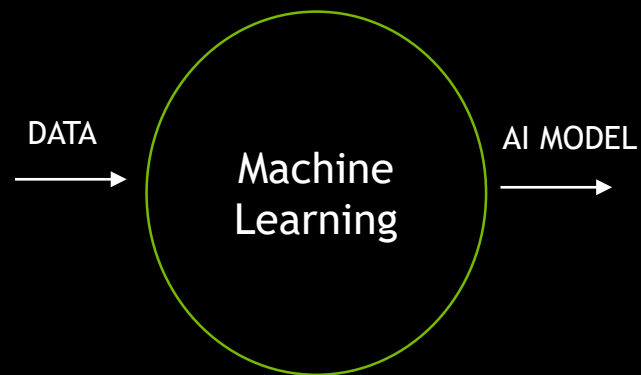
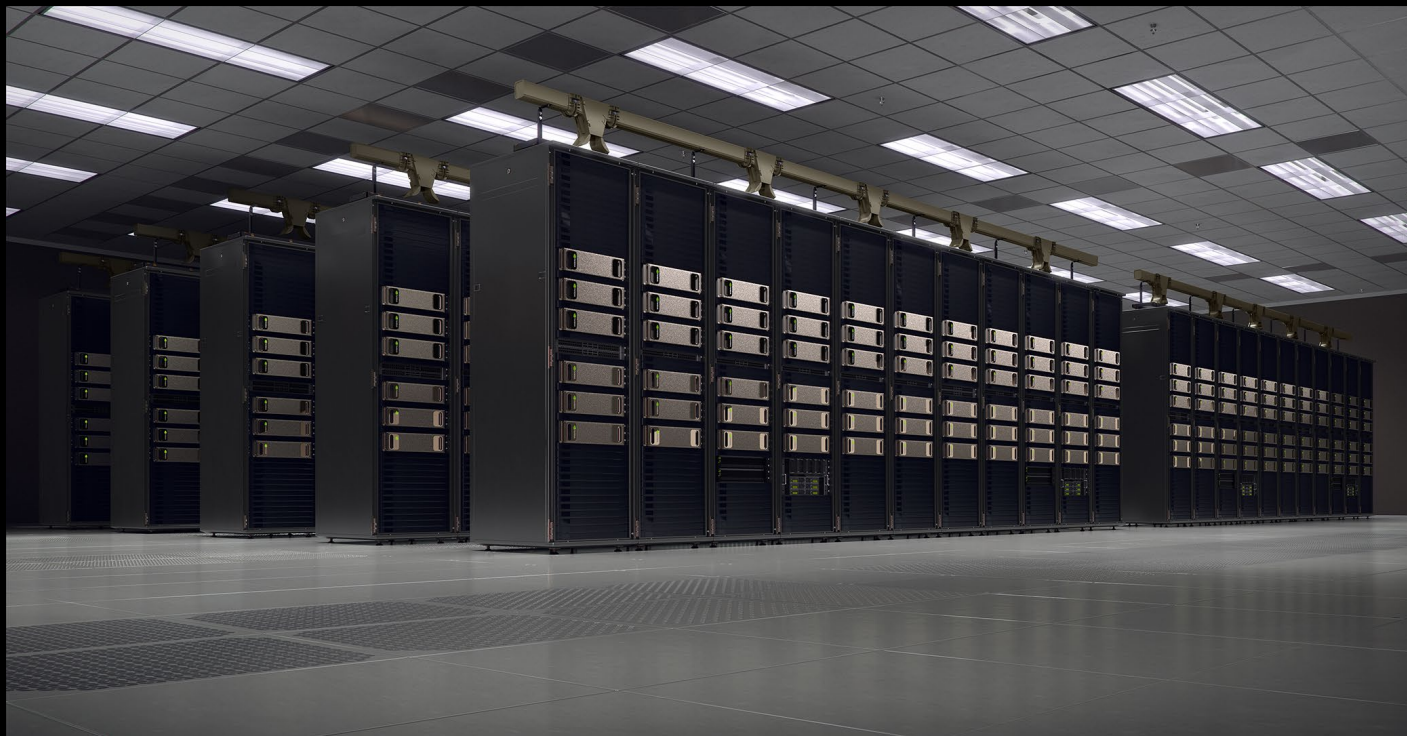


CUDA

GPU



AI LEADERSHIP NEEDS AI INFRASTRUCTURE LEADERSHIP



SATURNV

The Worlds Largest Enterprise
AI Infrastructure Buildout

1500 DGX Nodes

12,600 GPUs

1.5 ExaFLOPs

5MW Average Power



SATURNV CIRCE

#61 Top500 With Only 36 Nodes

36 DGX-2H Servers

576 NVIDIA GPUs

3.057 TF Linpack

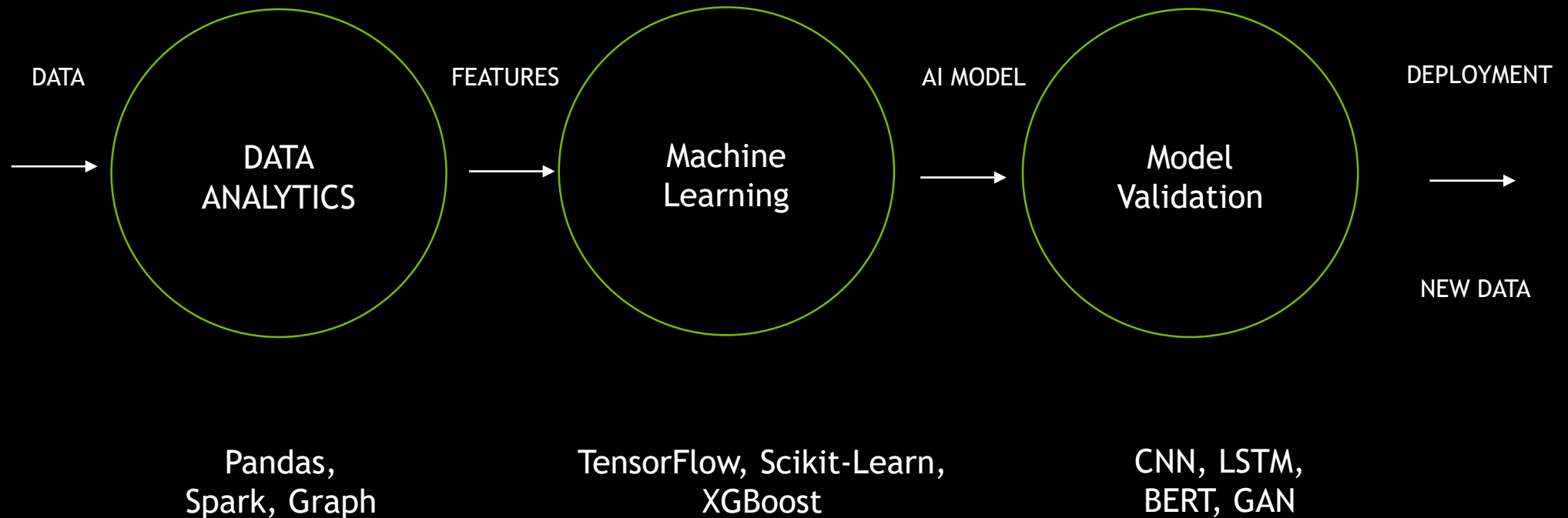
MLPerf record holder



Close-up on NVIDIA DGX POD™



DATA IS THE NEW SOURCE CODE



HEALTHCARE DATA IS ENORMOUS

The Perfect Fuel For AI



Genomics Data
2x/7Months



Instrument Data
3+ TB/day



Hospital Data
50 PB/Year

MEDICAL IMAGING

Essential tool of early detection and disease management

Demand outpacing supply of world's radiologists

Imaging field enormously complex

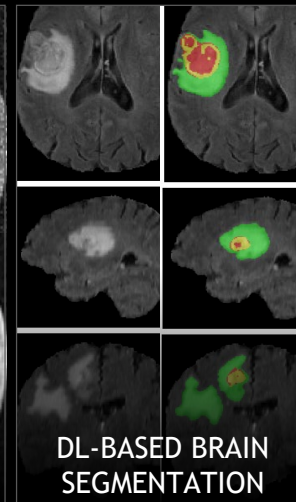
Perfect application for AI

70%

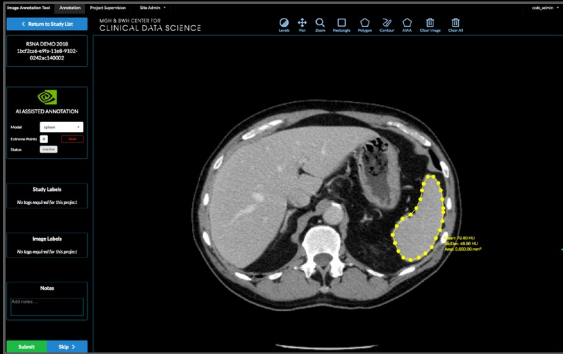
Medical Imaging
Research based on
DL Today

\$8.6B

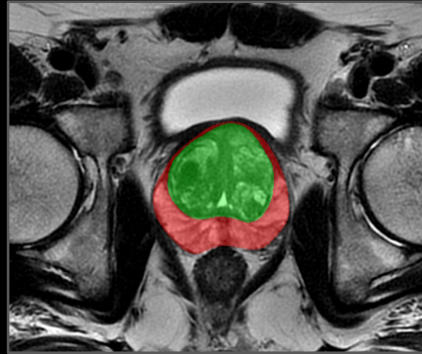
Annual Software
Revenue for AI Use
Cases by 2025



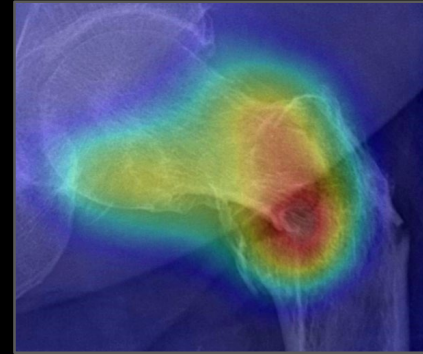
CLARA AI - BUILT FOR RADIOLOGY



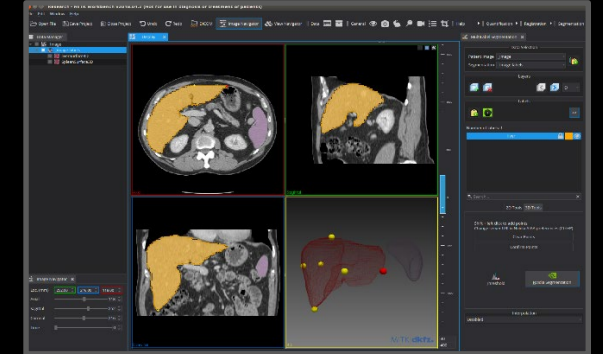
MGH
3D Annotation from
Hours to Minutes



NIH
Trained State-of-the-
Art Model in Weeks



OSU
Clinical Model
Deployment
in Less Than 24
hours



DKFZ
Clara AI Annotation
Integrated in MITK Open
Source Viewer

AI-ASSISTED ANNOTATION



KING'S COLLEGE LONDON & NVIDIA

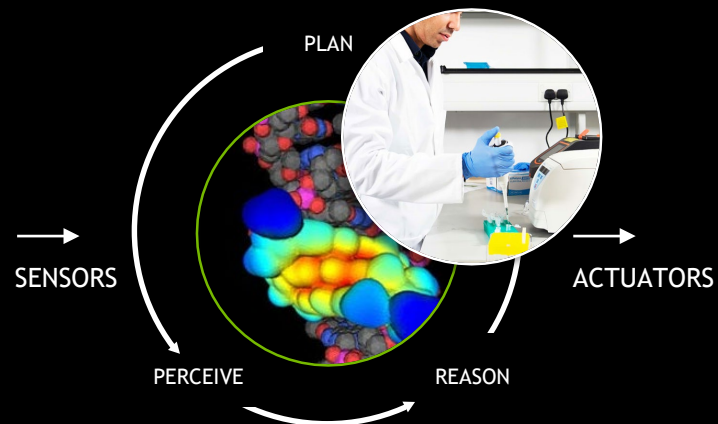
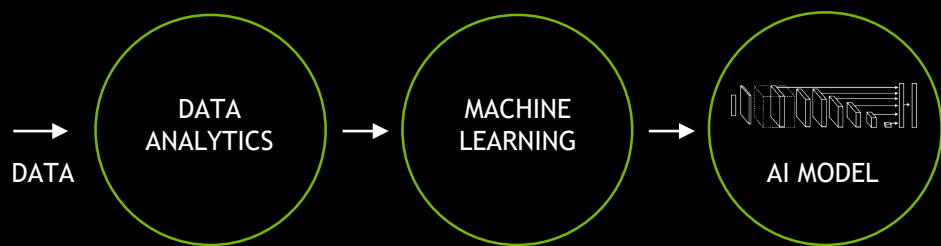
Bringing Clara AI TO UK's NHS Hospitals



Developing AI Training Tools for Imaging, NLP, Research

ATOM CONSORTIUM FOR DRUG DISCOVERY

Britain's GlaxoSmithKline, US National Cancer Institute, NVIDIA



ATOM

OXFORD NANOPORE & NVIDIA AGX PERSONAL DNA SEQUENCER

MiniIT Powered by Jetson AGX
PromethION Powered by
4 V100 GPUs



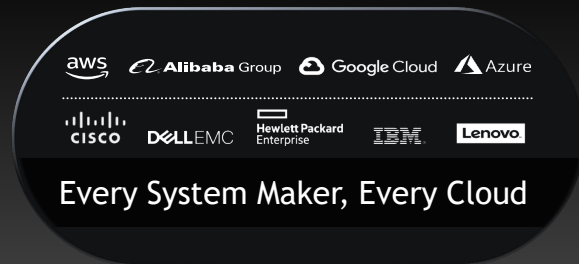
AGCGGTTGATTTC
TGGGG



AI FOR TRANSPORTATION: NVIDIA DRIVE

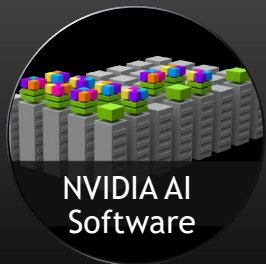


NVIDIA PARTNERSHIP FRAMEWORK



aws Alibaba Group Google Cloud Azure
cisco DELL EMC Hewlett Packard Enterprise IBM Lenovo

Every System Maker, Every Cloud



NVIDIA AI Software



NVIDIA DGX

TECHNOLOGY &
ECOSYSTEM



NVIDIA Research



NVAIL University Collaboration



NVIDIA Inception Startup Program

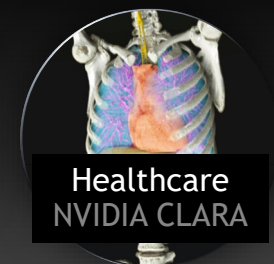


NVIDIA DLI Training

EXPERTISE &
INVESTMENT



Transportation NVIDIA DRIVE



Healthcare NVIDIA CLARA



Robotics NVIDIA ISAAC



AI City NVIDIA METROPOLIS

INDUSTRY SOLUTION
PLATFORMS

AI-AT-SCALE SUCCESS - BUILT ON NVIDIA DGX

- Organizations around the globe build AI at scale with DGX

NEVER STOP

社会課題に、世界最速で解を。

FUJIC Brava
Super Computer System for Deep Learning

FUJIFILM
Value from Innovation

The advertisement features a blue background with server racks and Japanese text. The main headline is 'NEVER STOP' in large white letters. Below it, a sub-headline reads '社会課題に、世界最速で解を。' (Solving social issues at the world's fastest speed). The Fujic Brava logo and 'Super Computer System for Deep Learning' are prominently displayed on the right side. The Fujifilm logo and 'Value from Innovation' are at the bottom left.

RIKEN - JAPAN'S LARGEST DEEP LEARNING RESEARCH INSTITUTION

Conventional HPC architectures are proving too costly and inefficient for meeting the needs of AI researchers. So customers like RIKEN are looking to DGX-1 solutions that reduce cost and power consumption while increasing performance. 54 nodes of DGX-1 will enable RIKEN to solve complex challenges and opportunities in healthcare, drug discovery, manufacturing and public safety.

RIKEN

The image shows a long aisle of server racks in a data center. The RIKEN logo is in the bottom left corner.

FAIR DGX-1 CLUSTER SCALES DEEP LEARNING INFRASTRUCTURE

The field of AI holds tremendous promise to improve lives. Facebook A.I. Research (FAIR) is advancing the field of machine intelligence by creating new technologies that give people better ways to communicate. To manage the huge variety of projects, datasets, and ever-changing workloads, FAIR needed to update its research cluster. 128 NVIDIA DGX-1 with CUDA are the main component of the new cluster and deliver the extreme performance and flexibility FAIR needs to advance AI.

f

The image shows a perspective view of server racks in a data center aisle. The Facebook logo is in the bottom left corner.

JADE - THE UK'S LARGEST GPU-POWERED AI RESEARCH FACILITY

The Joint Academic Data Science Endeavour (JADE) is the largest GPU facility in the UK supporting world-leading research in machine learning. The computational hub integrates 22 NVIDIA DGX-1 Deep Learning Systems. The new JADE facility aims to address the gap between university systems and access to national HPC services. This will drive forward innovation in machine learning, identifying new applications and insights in to research challenges.

JADE
Tier 2 HPC

The image shows a server rack with a glass door, illuminated with green light. The JADE logo and 'Tier 2 HPC' are at the bottom left.

ZENUITY: DEVELOPING VEHICLES OF THE FUTURE WITH NVIDIA AND PURE STORAGE

WE ARE IN A GLOBAL RACE TO SEE WHO CAN DELIVER THE SAFEST SOLUTION FOR AUTONOMOUS VEHICLES FIRST. THE COMBINATION OF NVIDIA DGX-1 AND PURE STORAGE FLASHBLADE PROVIDES A BREAKTHROUGH AI INFRASTRUCTURE THAT ENABLES US TAKE A LEADERSHIP POSITION.

Benny Nilsson
Manager of Deep Learning

The image shows a top-down view of a car on a road with a red bounding box around it, indicating object detection. The Zenuity logo is in the top right corner.



nVIDIA®