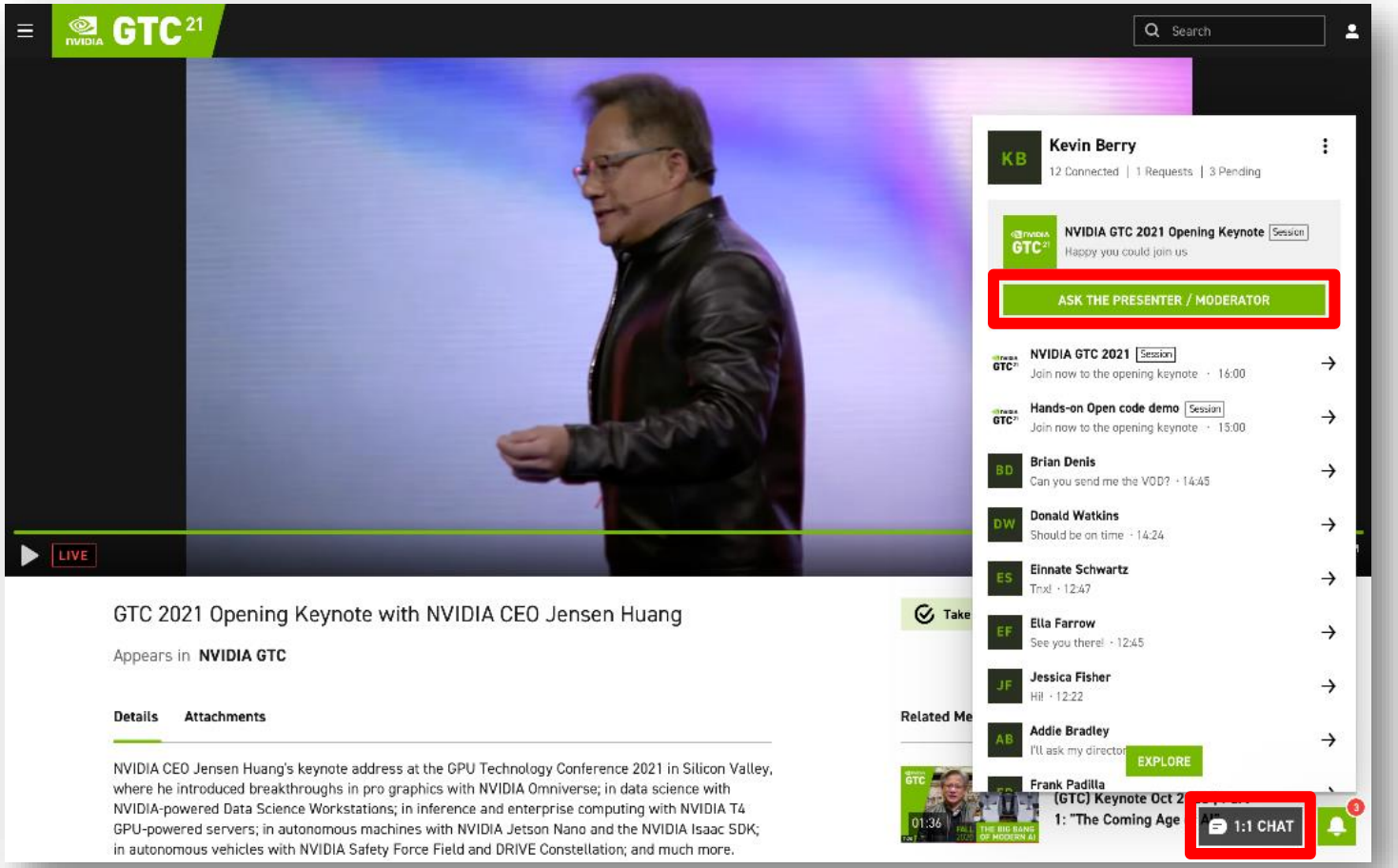
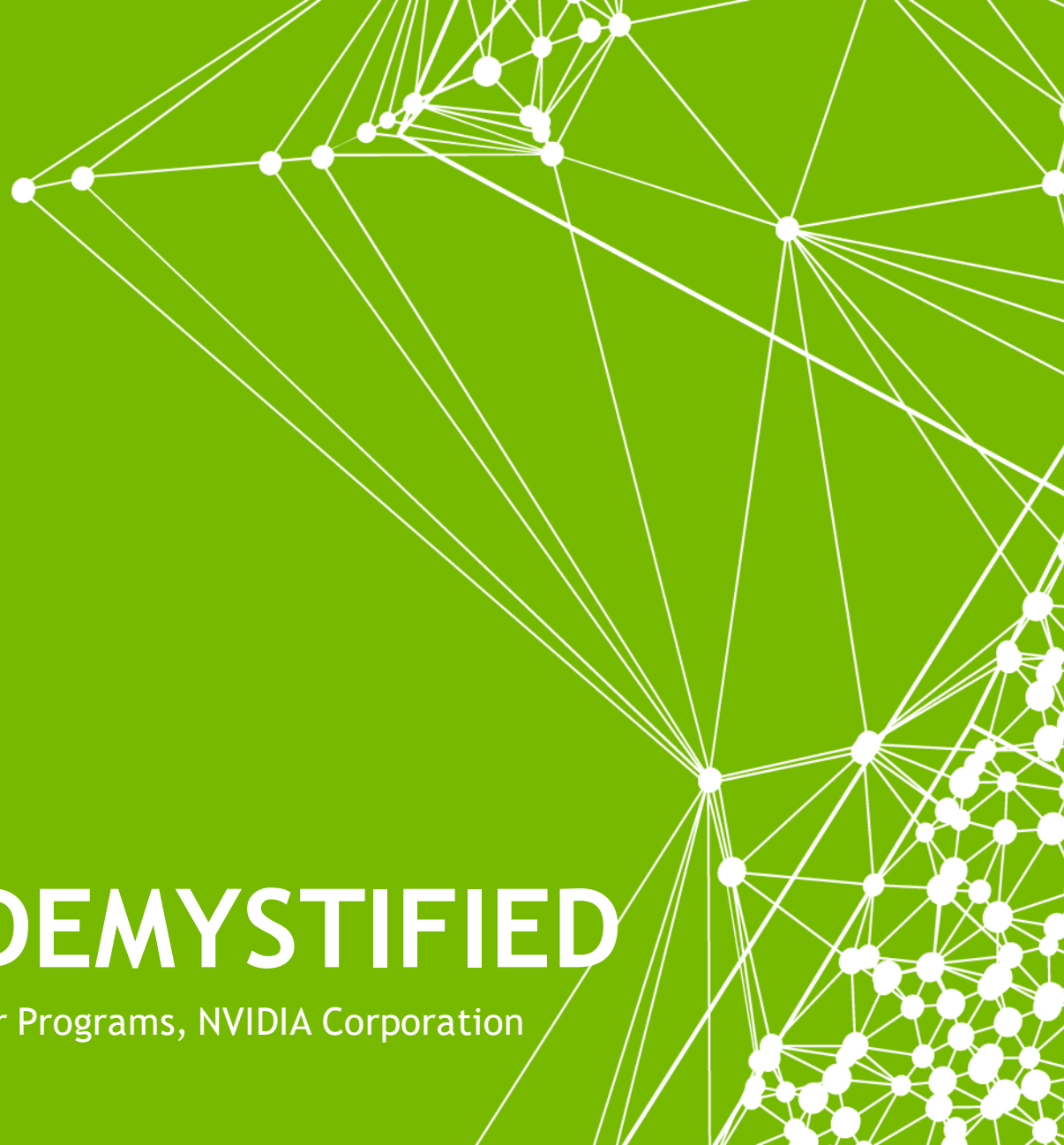
NVIDIA GTC 21

QUESTIONS? LET'S CHAT!



Click on "1:1 Chat," then "Ask the Presenter/Moderator" button to submit your questions.

After the session is over, connect with the presenter and others during GTC via attendee chat by searching for their name.



NVIDIA | DEEP LEARNING INSTITUTE

DEEP LEARNING DEMYSTIFIED

Will Ramey, Sr. Director, Global Head of Developer Programs, NVIDIA Corporation

ACCELERATED DATA SCIENCE

DATA ANALYTICS

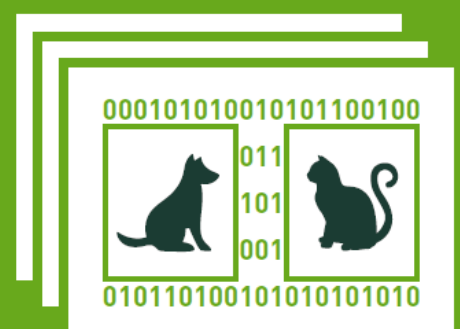
Extracting insights from big data

MACHINE LEARNING

Learning from examples in the data

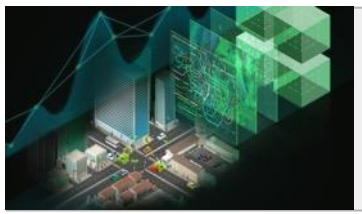
DEEP LEARNING

Automating feature engineering



GPU-ACCELERATED DATA SCIENCE

Use Cases in Every Industry

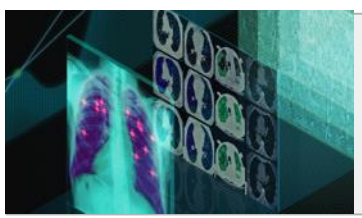


CONSUMER INTERNET

Ad Personalization
Click Through Rate Optimization
Churn Reduction

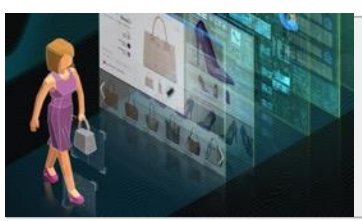
FINANCIAL SERVICES

Claim Fraud
Customer Service Chatbots/Routing
Risk Evaluation



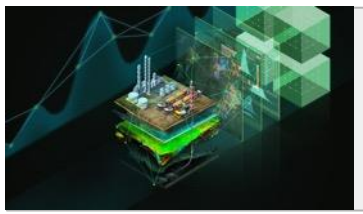
HEALTHCARE

Improve Clinical Care
Drive Operational Efficiency
Speed Up Drug Discovery



RETAIL

Supply Chain & Inventory Management
Price Management / Markdown Optimization
Promotion Prioritization And Ad Targeting



OIL & GAS

Sensor Data Tag Mapping
Anomaly Detection
Robust Fault Prediction

MANUFACTURING

Remaining Useful Life Estimation
Failure Prediction
Demand Forecasting

TELECOM

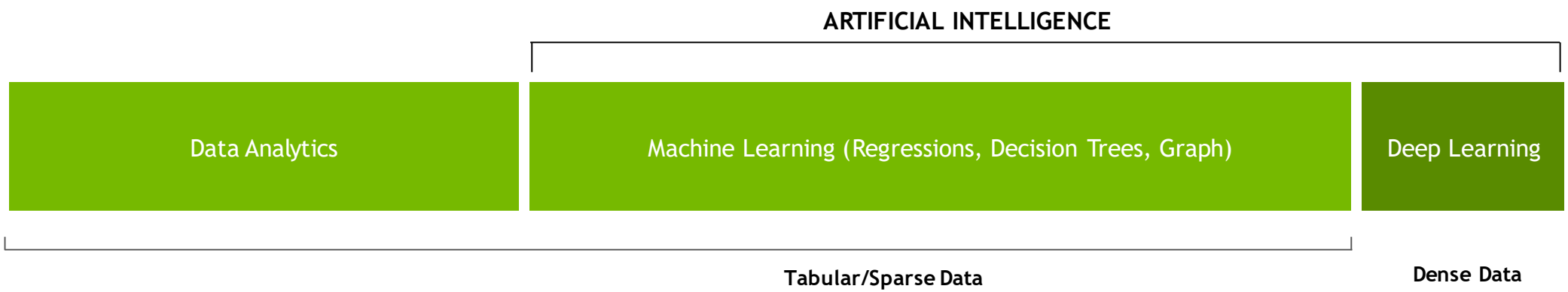
Detect Network/Security Anomalies
Forecasting Network Performance
Network Resource Optimization (SON)

AUTOMOTIVE

Personalization & Intelligent Customer Interactions
Connected Vehicle Predictive Maintenance
Forecasting, Demand, & Capacity Planning

BEYOND DEEP LEARNING

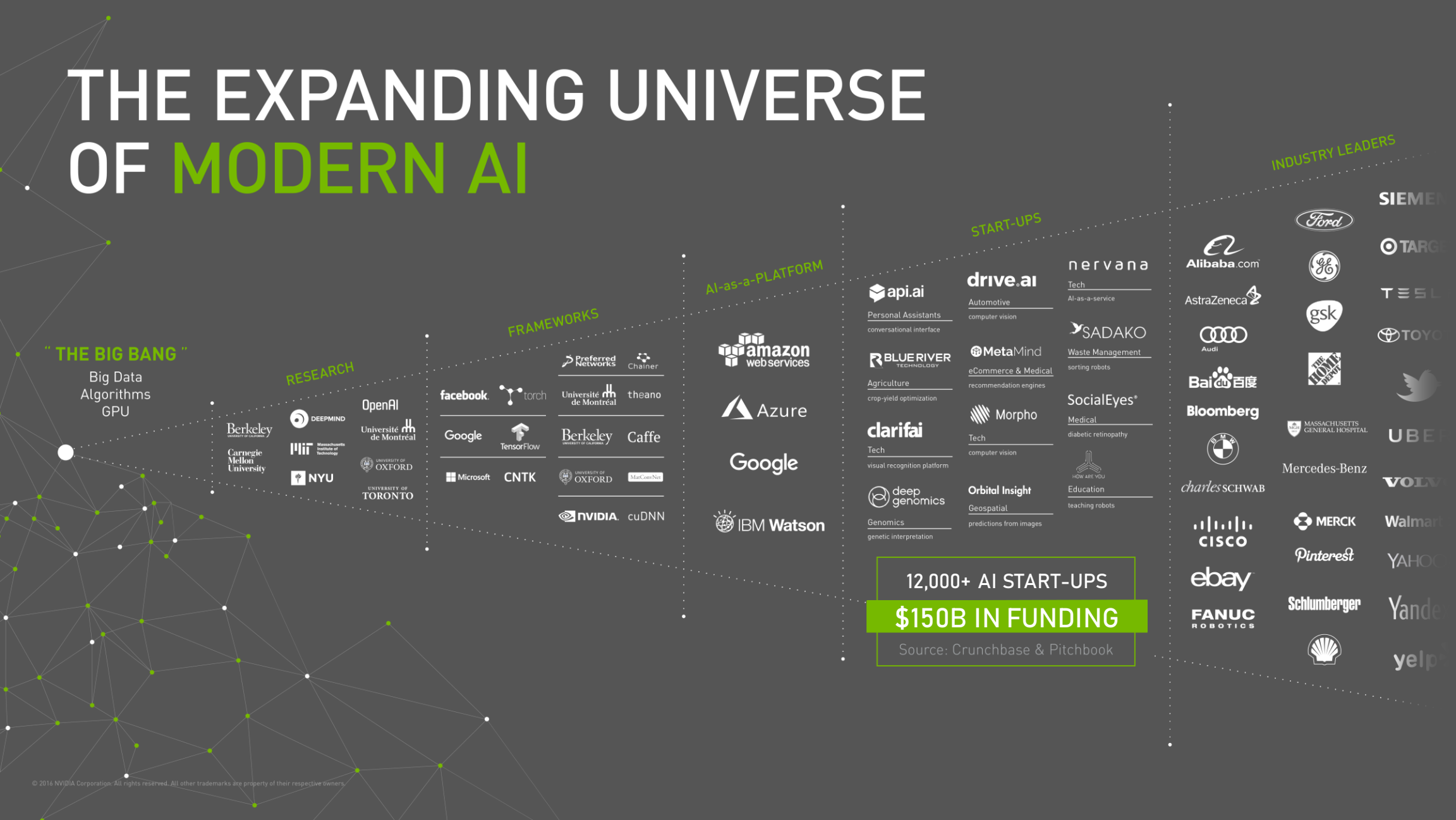
Opportunities to Accelerate Data Science



2.2 exabytes (2.2B GB) of data created daily – McKinsey

$274B annual revenue by 2022 for big data and business analytics – IDC

THE EXPANDING UNIVERSE OF MODERN AI



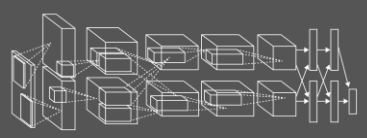
WHAT PROBLEM ARE YOU SOLVING?

Defining the AI/DL task

INPUTS	BUSINESS QUESTIONS	AI / DL TASK	EXAMPLE OUTPUTS		
			HEALTHCARE	RETAIL	MANUFACTURING
 Text Data  Images  Audio  Video	Is “it” **present** or not?	Detection	Cancer Detection	Targeted Ads	Defect Detection
	What **type** of thing is “it”?	Classification	Transcription / Image Classification	Basket Analysis	Material Sorting
	To what **extent** is “it” present?	Segmentation	Tumor Size & Shape Analysis	360° Customer Views	Autonomous Navigation
	What is the likely **outcome**?	Prediction	Survivability Prediction	Sentiment & Behavior Recognition	Predictive Maintenance
	What will likely satisfy the objective?	Recommendations	Therapy Recommendation	Recommendation Engine	Supply Chain Optimization

CAMBRIAN EXPLOSION

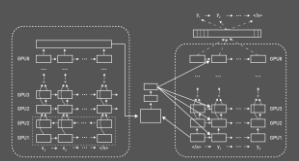
Convolutional Networks



Encoder/Decoder | ReLu | BatchNorm

Concat | Dropout | Pooling

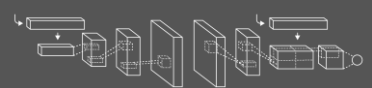
Recurrent Networks



LSTM | GRU | Beam Search

WaveNet | CTC | Attention

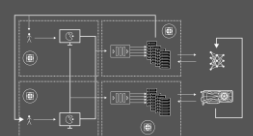
Generative Adversarial Networks



3D-GAN | MedGAN | Conditional GAN

Coupled GAN | Speech Enhancement GAN

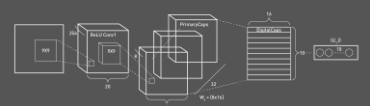
Reinforcement Learning



DQN | Simulation

DDPG

New Species



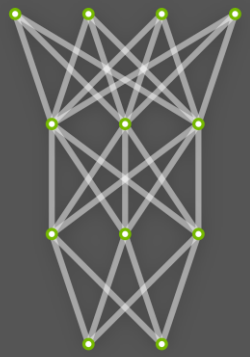
Mixture of Experts | Neural Collaborative Filtering

Block Sparse LSTM

DEEP LEARNING APPLICATION DEVELOPMENT

DEEP LEARNING APPLICATION DEVELOPMENT

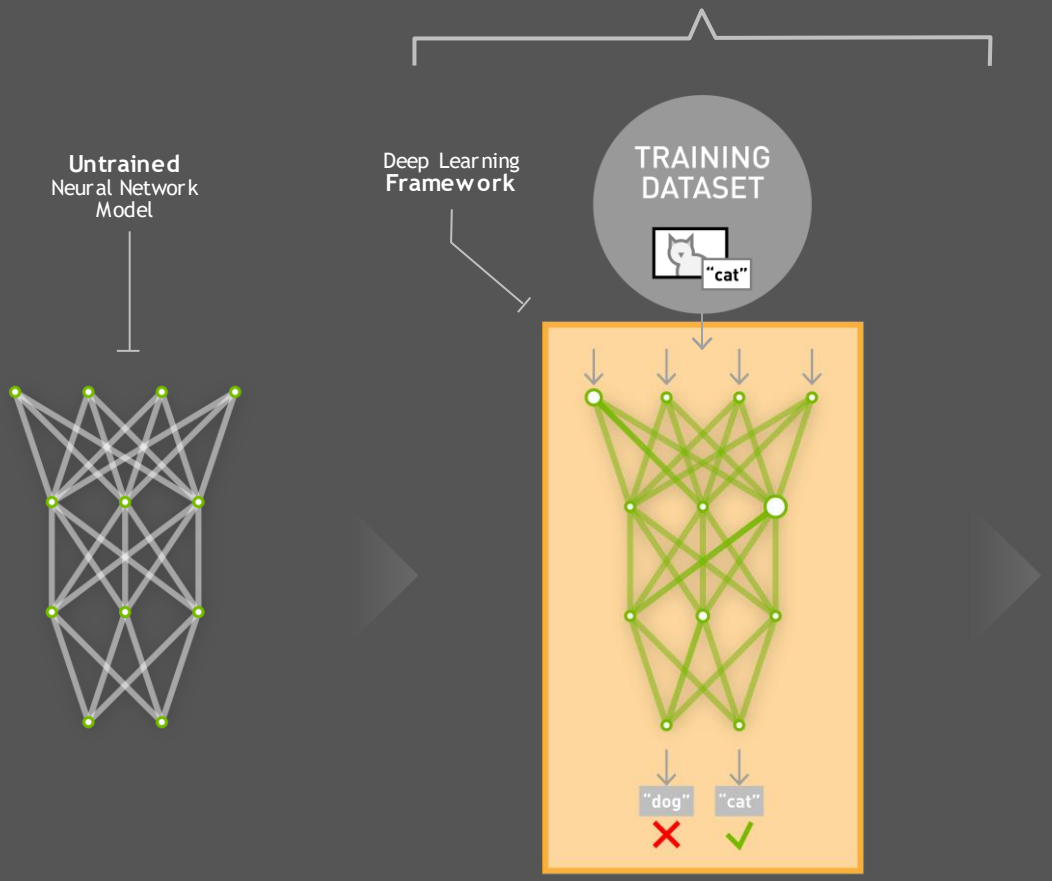
Untrained
Neural Network
Model



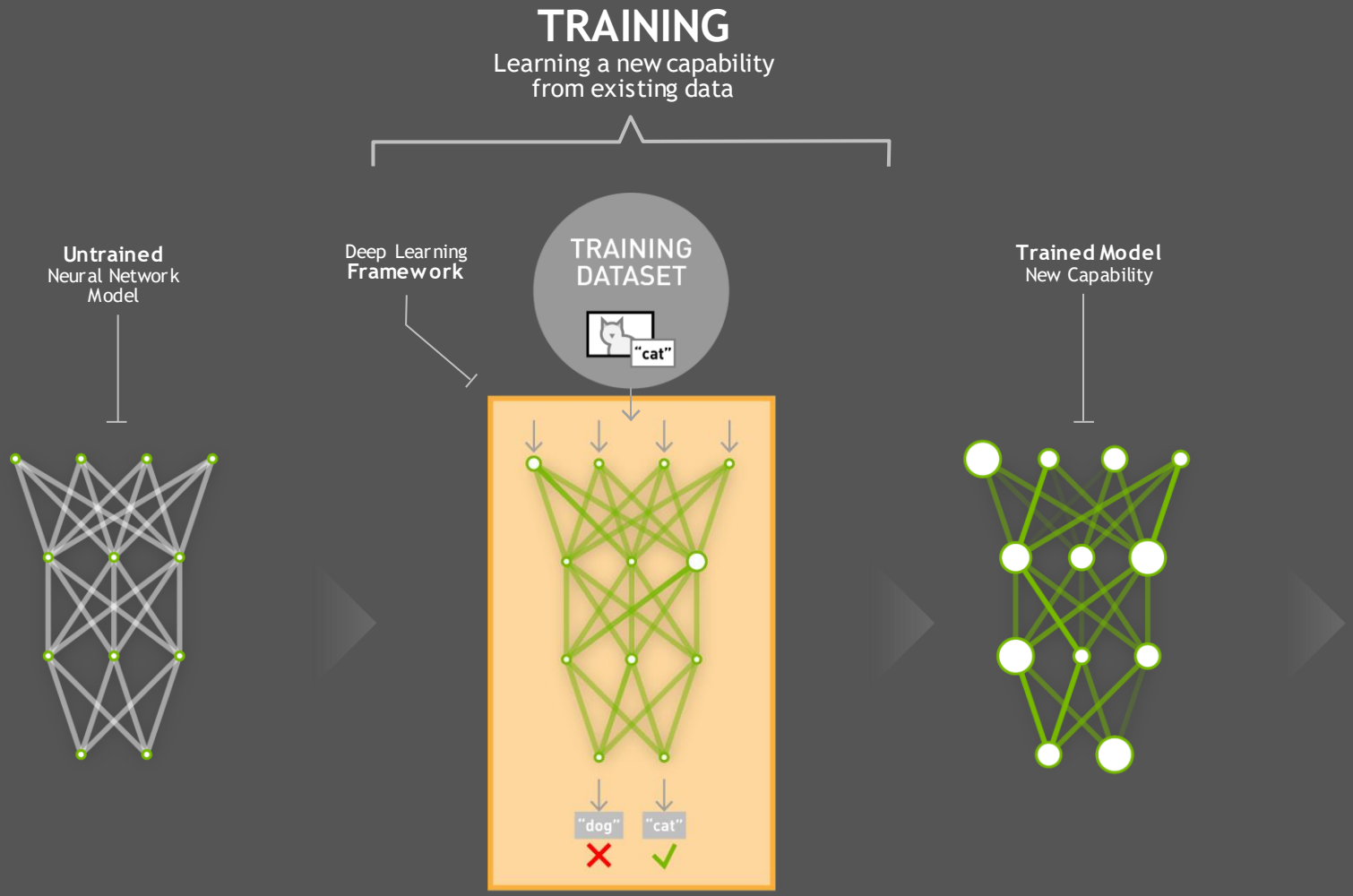
DEEP LEARNING APPLICATION DEVELOPMENT

TRAINING

Learning a new capability from existing data



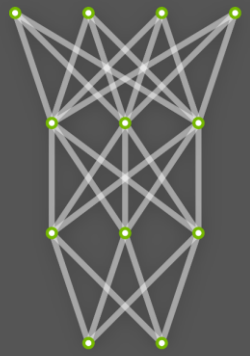
DEEP LEARNING APPLICATION DEVELOPMENT



DEEP LEARNING APPLICATION DEVELOPMENT

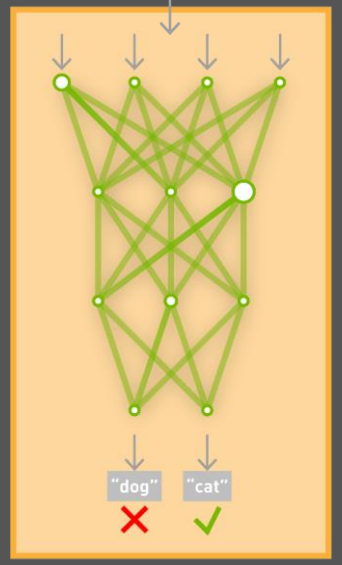
TRAINING
Learning a new capability
from existing data

Untrained
Neural Network
Model

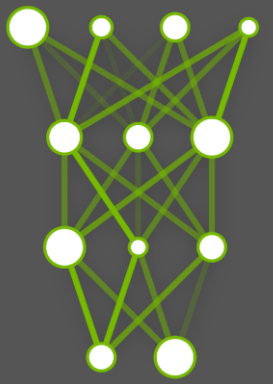


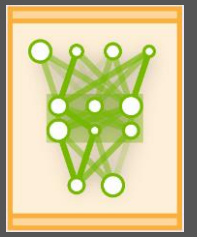
Deep Learning
Framework

TRAINING
DATASET



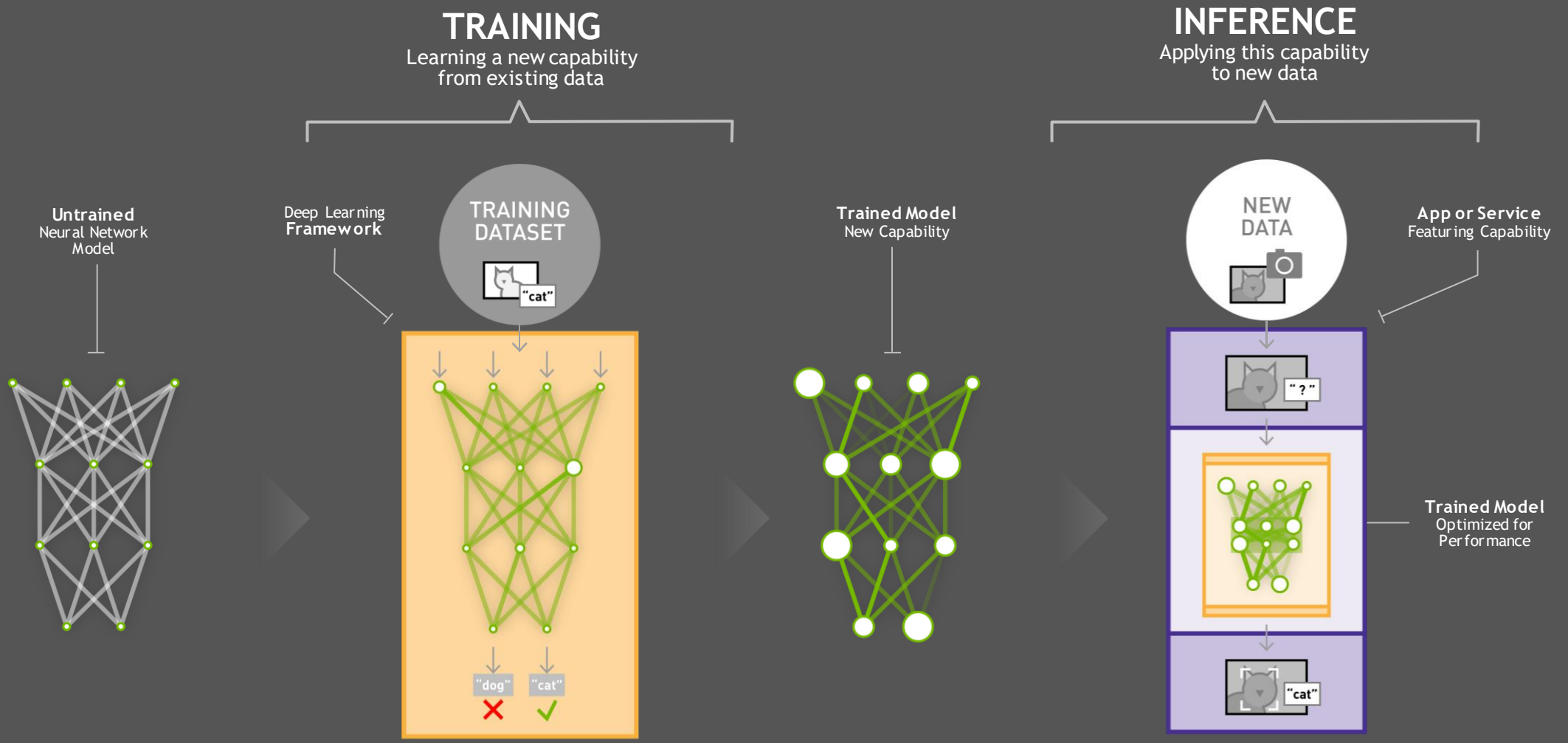
Trained Model
New Capability





Trained Model
Optimized for
Performance

DEEP LEARNING APPLICATION DEVELOPMENT



CHALLENGES

DEEP LEARNING NEEDS	WHY
New Skills	New computing model
Latest Algorithms	Rapid evolving
Fast Training	Impossible -> Practical
Deployment Platforms	Must be available everywhere

NVIDIA DEVELOPER PROGRAM

SUPPORTING THE COMMUNITY THAT'S CHANGING THE WORLD

TOOLS

- Exclusive access to an extensive library of NVIDIA software, spanning all of NVIDIA's technology platforms.
- Save time with ready-to-run GPU-optimized software, model scripts, and containerized apps from NGC repository.
- Participate in early access programs where you can be one of the first to experience the latest NVIDIA technology and help influence its evolution.

TRAINING

- Take advantage of research papers, technical documentation, developer blogs, live and recorded webinars, and industry-specific resources.
- Choose from an extensive catalog of training options through the NVIDIA Deep Learning Institute (DLI).
- Unlimited access to NVIDIA On-Demand, the home for NVIDIA resources from GTCs and other leading industry events from around the world.

COMMUNITY

- Network with like-minded developers, engage with GPU experts, and contribute to the discussions through the developer forums.
- Attend exclusive meetups, GPU hackathons, and events.
- Connect with NVIDIA experts through developer-focused webinars.

developer.nvidia.com/join

NVIDIA DEEP LEARNING INSTITUTE

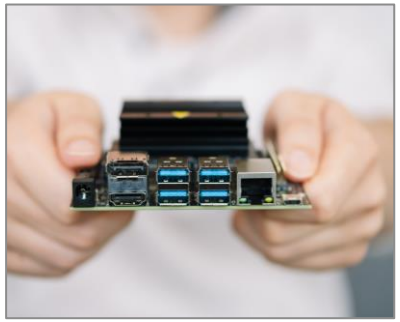
Hands-on Training for Data Scientists and Software Engineers

Helping the world to solve challenging problems using AI and deep learning

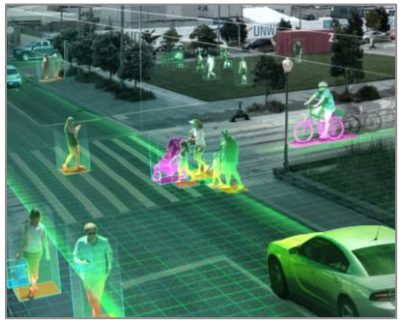
On-site workshops and online courses presented by certified instructors

Covering complete workflows for proven application use cases

Autonomous Vehicles, Healthcare, Robotics, Video Analytics, Recommender Systems, NLP, …

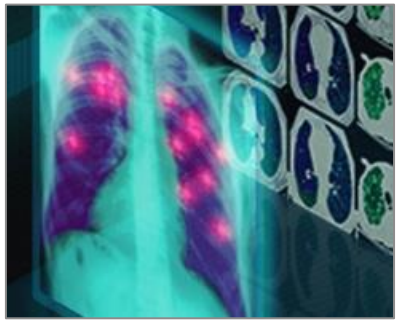


Getting Started with AI on Jetson Nano



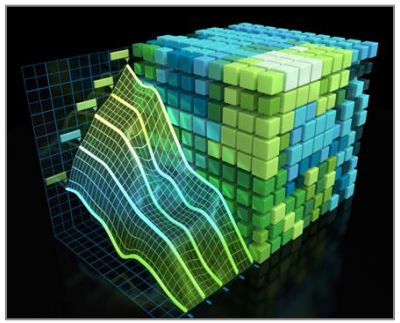
Deep Learning for Intelligent Video Analytics

Deep Learning for Robotics



Deep Learning for Healthcare Image Analysis

Fundamentals of Accelerated Data Science with RAPIDS



Fundamentals of Accelerated Computing with CUDA Python

www.nvidia.com/dli

NVIDIA GTC

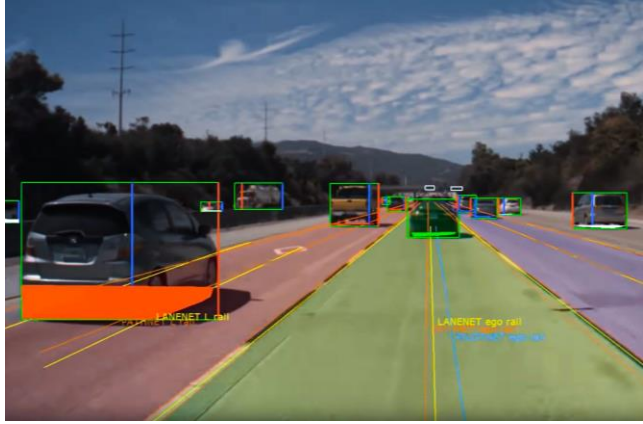
BRILLIANT MINDS. BREAKTHROUGH DISCOVERIES. UNIQUE ONLINE EXPERIENCES.

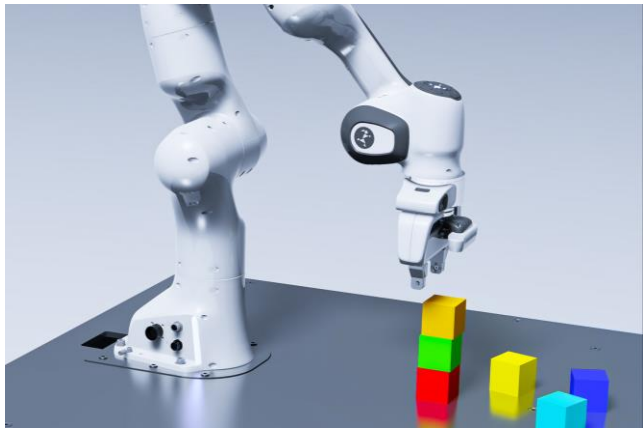
EXPLORE GTC DIGITAL

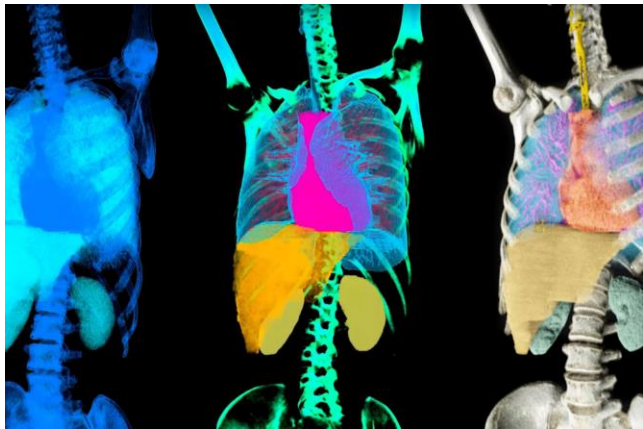
GTC Digital is the great content, insights, and direct access to the brightest minds of NVIDIA's GPU Technology Conference, all online and offered in a time zone near you.

- Connect with fellow developers, business leaders, and industry experts during live presentations and Connect with the Experts sessions.
- Explore the catalog of talks, panels, and demos you can view on your own schedule.
- Sign up for hands-on workshops to learn how you can apply the latest technologies to your most challenging projects.

www.nvidia.com/gtc







NVIDIA INCEPTION

Acceleration Platform for AI, Data Science and HPC Startups

7500+ Startups Cross-Industry • **$45B+** Cumulative Funding • **90+** Countries Represented

EXPERTISE

Guidance on 150+ software development kits to accelerate your application

NVIDIA Deep Learning Institute course credits

Training in AI, data science, accelerated computing, and more

TECHNOLOGY ASSISTANCE

Preferred pricing on NVIDIA GPUs

Up to $100K in cloud credits through our global partners

GO-TO-MARKET SUPPORT

Presentation opportunities at NVIDIA GTC

Invites to members-only events

VENTURE CAPITAL FUNDING & ECOSYSTEM

Exclusive access to VCs through NVIDIA

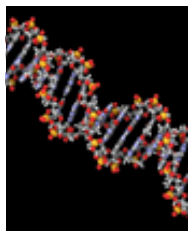
NVIDIA Inception GPU Ventures

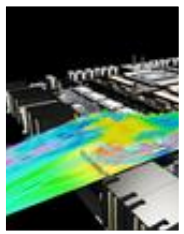
Now Accepting Applications:
www.nvidia.com/inception

SEE HUNDREDS OF NVIDIA INCEPTION MEMBERS AT GTC

ARTISIGHT plotly SIGTUPLE LOCUS NURITAS tvori itk kinetica HUGGING FACE descript

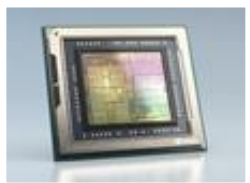
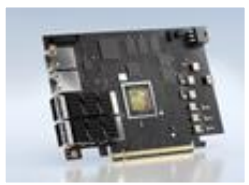
DEEP LEARNING SOFTWARE PLATFORMS



Omniverse	Isaac	DRIVE	Aerial	Clara	DeepStream

Metropolis	Jarvis	Maxine	Merlin	RTX	Triton	TRT



NGC CATALOG – GPU OPTIMIZED HUB FOR AI & HPC SOFTWARE

Simplify and Accelerate End-to-End Workflows

100+ CONTAINERS	50+ PRE-TRAINED MODELS	APPLICATION FRAMEWORKS	HELM CHARTS	COLLECTIONS
				
HPC | DL | ML	COMPUTER VISION | NLP | DLRM	CLARA | JARVIS | ISAAC	TRITON | GPU OPERATOR	CLARA DISCOVERY | TLT-JARVIS | RECSYS

x86 | ARM | POWER


ON-PREM


CLOUD

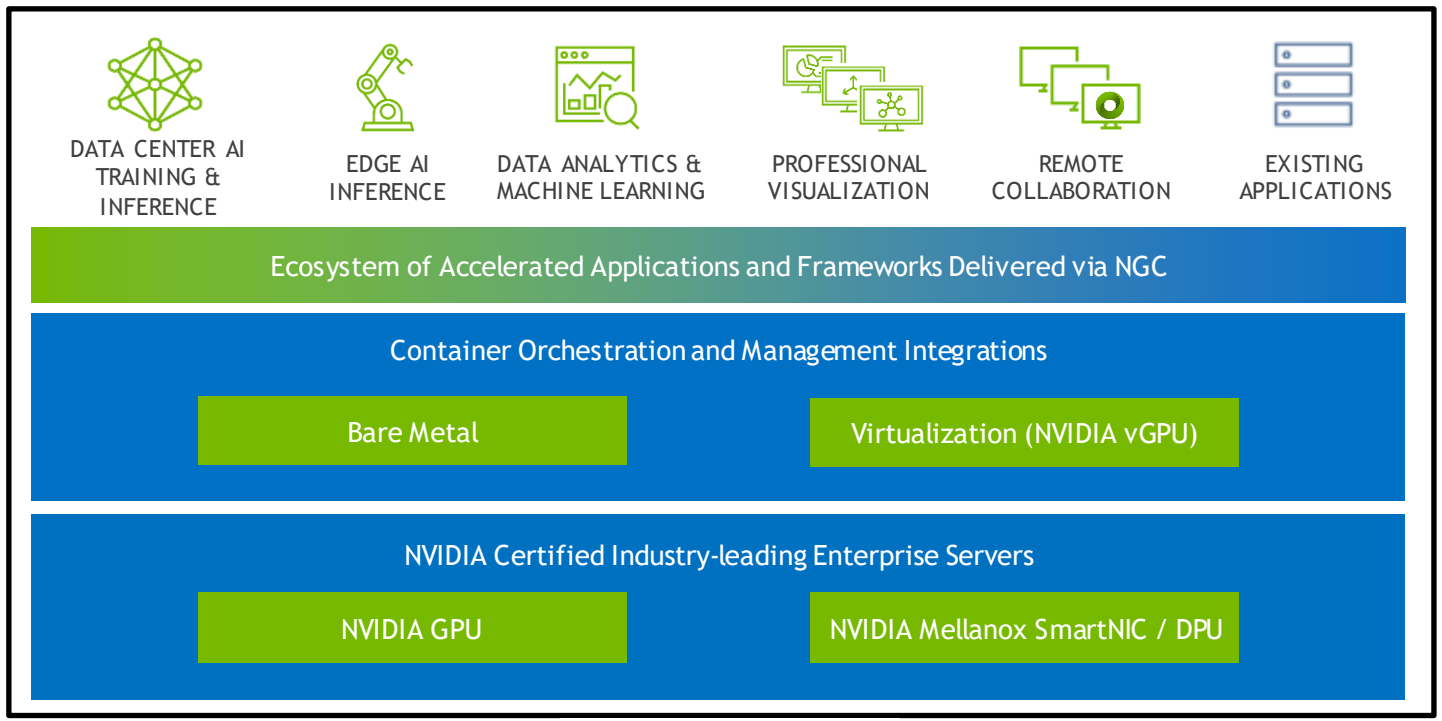

HYBRID CLOUD


EDGE

ngc.nvidia.com

NVIDIA EGX PLATFORM

Enterprise Accelerated Computing



www.nvidia.com/egx

END-TO-END PRODUCT FAMILY

HPC/TRAINING

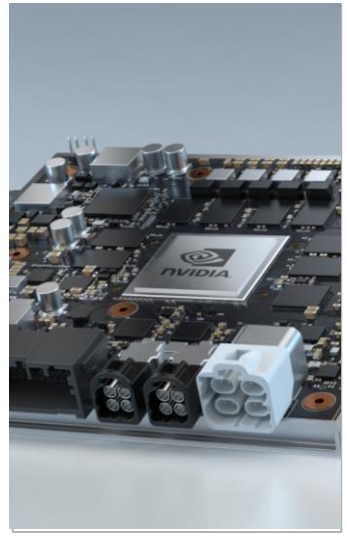
NVIDIA GPU CLOUD

INFERENCE

LAPTOP

WORKSTATION

DATA CENTER



AUTOMOTIVE

EMBEDDED

SOLUTIONS

DEEP LEARNING NEEDS	SOLUTIONS
New Skills	Developer Program, DLI, GTC
Latest Algorithms	DL Frameworks & Solutions, DL SDK
Fast Training	NGC, DGX, A100
Deployment Platforms	NGC, TensorRT, A100/T4, DRIVE, Jetson

READY TO GET STARTED?

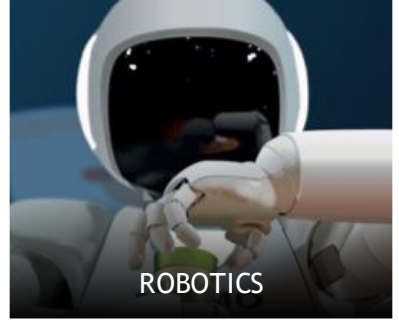
Project Checklist

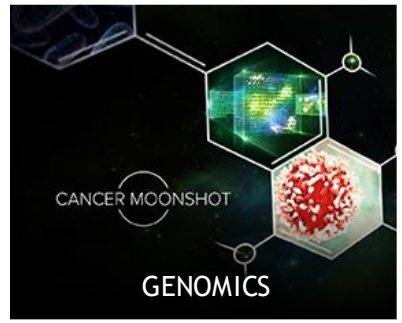
What problem are you solving,
what are the AI/DL tasks?

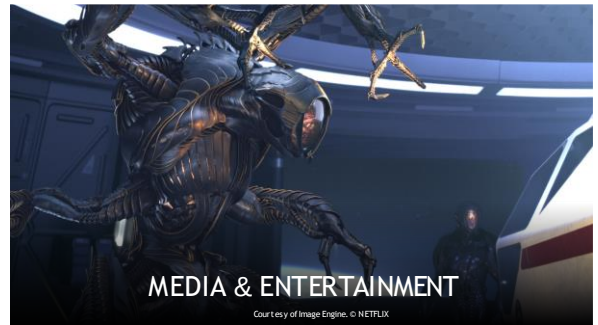
What data do you have/need,
how is it labeled?

Which tools & environment will you use?

On what platform(s) will you train and deploy?







WHAT'S NEXT?

Join the Developer Program	developer.nvidia.com/join
Explore News & Resources	developer.nvidia.com/blog
Train online with DLI	developer.nvidia.com/dli
Listen to the NVIDIA AI Podcast	blogs.nvidia.com/ai-podcast

THANK YOU

NVIDIA | DEEP LEARNING INSTITUTE

www.nvidia.com/dli