



NVIDIA DEVELOPER PROGRAM



AGENDA

NVIDIA Developer Program benefits

Becoming an NVIDIA Developer

Developer Engagement Platforms

Navigating NVIDIA Developer Platforms

NVIDIA DEVELOPER PROGRAM BENEFITS

Helping developers succeed

- Product downloads and early access opportunities
- Information about new product releases and features
- Access to community & NVIDIA technical staff through forums
- Issue and bug submission
- Customer stories, technical blogs, and whitepapers
- Online technical documentation & code samples
- Self paced training and professional on site workshops
- Invites to exclusive developer events

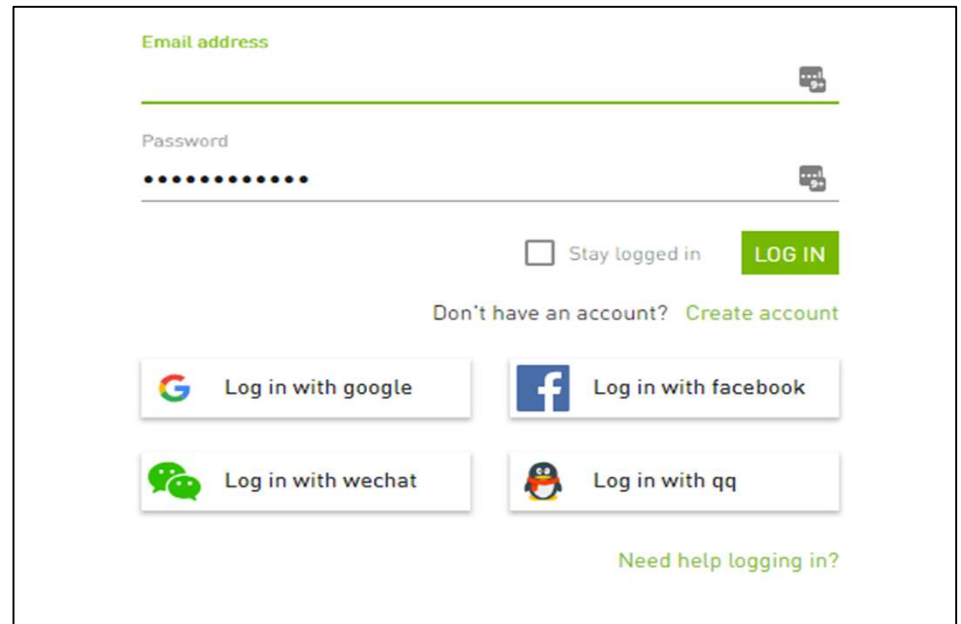


GETTING STARTED

Go to <https://developer.nvidia.com/join> or click the “Join” and “Create account” links on NVIDIA developer web pages

NVIDIA Account credentials provide you access to:

- All NVIDIA Developer Platforms
- NVIDIA GPU Cloud (NGC)
- NVIDIA’s consumer programs including GeForce Now and GeForce Experience


A screenshot of the NVIDIA Developer login page. It features a white background with a green border. At the top, there are two input fields: "Email address" and "Password", both with green borders and placeholder text. Below the password field is a "Stay logged in" checkbox and a green "LOG IN" button. To the right of the "LOG IN" button is a link that says "Don't have an account? Create account". Below these are four social login buttons: "Log in with google" (with the Google logo), "Log in with facebook" (with the Facebook logo), "Log in with wechat" (with the WeChat logo), and "Log in with qq" (with the QQ logo). At the bottom right, there is a link that says "Need help logging in?".


Email address


Password


☐ Stay logged in **LOG IN**

Don't have an account? [Create account](#)

 Log in with google

 Log in with facebook

 Log in with wechat

 Log in with qq

[Need help logging in?](#)

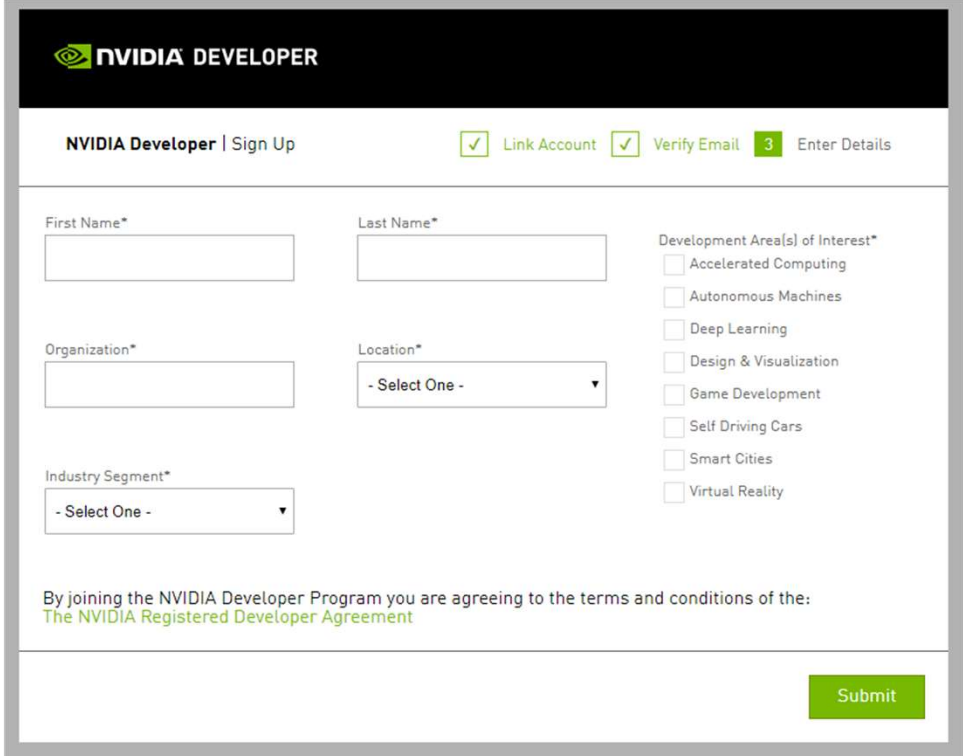
GETTING STARTED

Using your corporate email gives you higher priority when reporting issues and consideration when applying for Early Access programs

Opting-in to communications gives you the latest information on product releases, news, and special events

The “Developer Areas of Interest” help us send you the most relevant updates and information

The information you share with us is never given or used by anyone outside NVIDIA



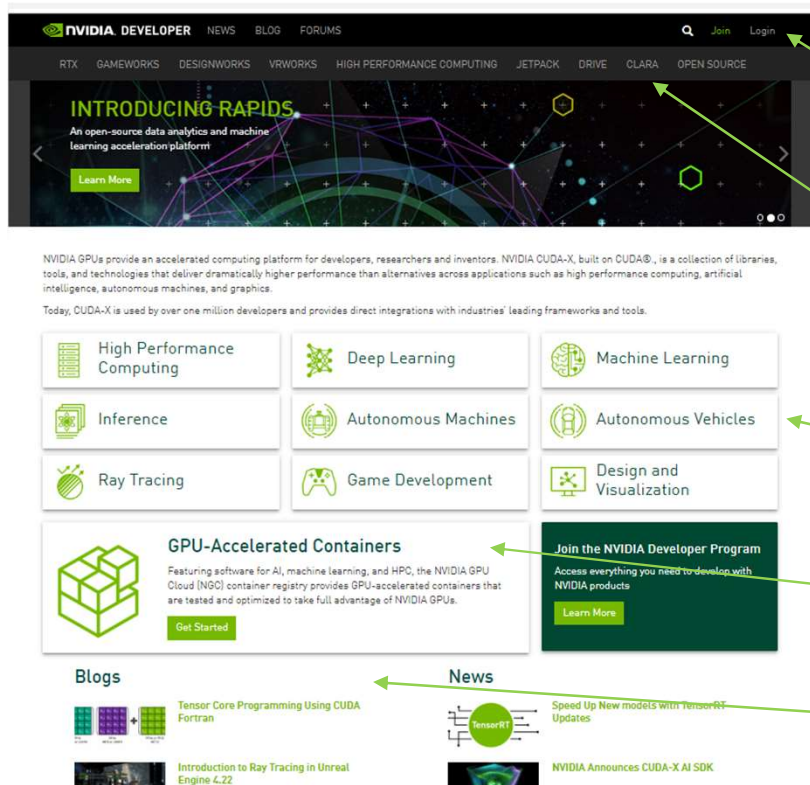
The screenshot shows the NVIDIA Developer sign-up interface. At the top, the NVIDIA logo and 'NVIDIA DEVELOPER' are displayed. Below this, a progress bar indicates the current step: 'Link Account' (checked), 'Verify Email' (checked), and 'Enter Details' (active, highlighted with a green '3'). The form fields include: 'First Name*' (text input), 'Last Name*' (text input), 'Organization*' (text input), 'Location*' (dropdown menu showing '- Select One -'), and 'Industry Segment*' (dropdown menu showing '- Select One -'). To the right of these fields is a section titled 'Development Area(s) of Interest*' with a list of checkboxes: Accelerated Computing, Autonomous Machines, Deep Learning, Design & Visualization, Game Development, Self Driving Cars, Smart Cities, and Virtual Reality. At the bottom, a disclaimer states: 'By joining the NVIDIA Developer Program you are agreeing to the terms and conditions of the: The NVIDIA Registered Developer Agreement'. A green 'Submit' button is located at the bottom right of the form.

DEVELOPER ENGAGEMENT PLATFORMS

Information, downloads, special programs, code samples, and bug submission	developer.nvidia.com
Containers for cloud and workstation environments	ngc.nvidia.com
Insights & help from other developers and NVIDIA technical staff	devtalk.nvidia.com
Technical documentation	docs.nvidia.com
Deep Learning Institute: workshops & self-paced courses	courses.nvidia.com
In depth technical how to blogs	devblogs.nvidia.com
Developer focused news and articles	news.developer.nvidia.com
Webinars	nvidia.com/webinar-portal
GTC on-demand content	gputechconf.com

TOP LEVEL NAVIGATION

developer.nvidia.com



Login using NVIDIA Account,
[Some downloads require login]

NVIDIA platform SDKs or tools

Domain-specific technology areas

NGC containers

Highlighted developer news and blogs

CUDA TOOLKIT

<https://developer.nvidia.com/cuda-toolkit>

CUDA Toolkit

[Home](#) > [High Performance Computing](#) > [CUDA Toolkit](#)

Develop, Optimize and Deploy GPU-accelerated Apps

The NVIDIA® CUDA® Toolkit provides a development environment for creating high performance GPU-accelerated applications. With the CUDA Toolkit, you can develop, optimize and deploy your applications on GPU-accelerated embedded systems, desktop workstations, enterprise data centers, cloud-based platforms and HPC supercomputers. The toolkit includes GPU-accelerated libraries, debugging and optimization tools, a C/C++ compiler and a runtime library to deploy your application.

GPU-accelerated CUDA libraries enable drop-in acceleration across multiple domains such as linear algebra, image and video processing, deep learning and graph analytics. For developing custom algorithms, you can use available integrations with commonly used languages and numerical packages as well as well-published development APIs. Your CUDA applications can be deployed across all NVIDIA GPU families available on premise and on GPU instances in the cloud. Using built-in capabilities for distributing computations across multi-GPU configurations, scientists and researchers can develop applications that scale from single GPU workstations to cloud installations with thousands of GPUs.

To get started, browse through online getting started resources, optimization guides, illustrative examples and collaborate with the rapidly growing developer community.

[Download Now >](#)

[CUDA 10.1: What's New...>](#)

COMPONENTS AND RESOURCES

 GPU-accelerated Libraries

 Documentation

 Getting Started

 Training

 Developer Tools

 Sample Code

 CUDA Developer Blogs

 Community

LIBRARIES

<https://developer.nvidia.com/gpu-accelerated-libraries>

~40 gpu-accelerated libraries as part of CUDA-X in addition to numerous partner libraries

Deep Learning Libraries



GPU-accelerated library of primitives for deep neural networks



GPU-accelerated neural network inference library for building deep learning applications



Advanced GPU-accelerated video inference library

Linear Algebra and Math Libraries



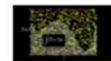
GPU-accelerated standard BLAS library



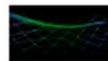
CUDA Math Library
GPU-accelerated standard mathematical function library



cuSPARSE
GPU-accelerated BLAS for sparse matrices



cuRAND
GPU-accelerated random number generation (RNG)



cuSOLVER
Dense and sparse direct solvers for Computer Vision, CFD, Computational Chemistry, and Linear Optimization applications



AesgX
GPU-accelerated linear solvers for simulations and implicit unstructured methods

Signal, Image and Video Libraries



cuFFT
GPU-accelerated library for Fast Fourier Transforms



NVIDIA Performance Primitives
GPU-accelerated library for image and signal processing

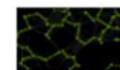


NVIDIA Codec SDK
High-performance APIs and tools for hardware accelerated video encode and decode

Parallel Algorithm Libraries



NCCL
Collective Communications Library for scaling apps across multiple GPUs and nodes



nvGRAPH
GPU-accelerated library for graph analytics



Thrust
GPU-accelerated library of parallel algorithms and data structures

Partner Libraries



OpenCV
GPU-accelerated open-source library for computer vision, image processing and machine learning, now supporting real-time operation



FFmpeg
Open-source multi-media framework with a library of plugins for audio and video processing



ARRAYFIRE
GPU-accelerated open source library for matrix, signal, and image processing



MAGMA
GPU-accelerated linear algebra routines for heterogeneous architectures, by Magma



IMSL RogueWave
GPU-accelerated open-source Fortran library with functions for math, signal and image processing, statistics, by RogueWave



GUNROCK
Library for graph-processing designed specifically for the GPU

NSIGHT TOOLS

<https://developer.nvidia.com/tools-overview>



Home > DEVELOPER > NVIDIA Developer Tools Overview

NVIDIA Developer Tools Overview

NVIDIA Developer Tools are a collection of applications, spanning desktop and mobile targets, which enable developers to build, debug, profile, and develop class leading and cutting edge software that utilizes the latest visual computing hardware from NVIDIA.

[Developer Tools Downloads >](#)

Nsight Productivity Utilities

NVIDIA® Nsight™ Systems

NVIDIA® Nsight Systems™ is a system-wide performance analysis tool designed to visualize an application's algorithms, identify the largest optimization opportunities, and tune to scale efficiently across any quantity or size of CPUs and GPUs, from large servers to our smallest SoC.

[Read More >](#)

NVIDIA® Nsight™ Graphics

NVIDIA® Nsight Graphics™ is a standalone application for the debugging, profiling, and analysis of graphics applications. It allows you to optimize the performance of your Direct3D 11, Direct3D 12, DirectX Raytracing, OpenGL, Vulkan, and NVIDIA VKRay based applications.

[Read More >](#)

NVIDIA® Nsight™ Eclipse Edition

NVIDIA® Nsight™ Eclipse Edition is a full-featured IDE powered by the Eclipse platform that provides an all-in-one integrated environment to edit, build, debug, and profile CUDA-C applications. Nsight Eclipse Edition supports a rich set of commercial and free plugins.

[Read More >](#)

NVIDIA® Nsight™ Compute

NVIDIA® Nsight™ Compute is an interactive kernel profiler for CUDA applications. It provides detailed performance metrics and API debugging via a user interface and command line tool. Nsight Compute also provides customizable and data-driven user interface and metric collection that can be extended with analysis scripts for post-processing results.

[Read More >](#)

NVIDIA® Nsight™ Visual Studio Edition

An application development environment for heterogeneous platforms, Nsight Visual Studio Edition brings GPU computing into Microsoft Visual Studio. Build, debug, profile and trace heterogeneous compute, graphics, virtual reality, RTX, .NET, and UWP applications built with CUDA C/C++, OpenGL, DirectCompute, Direct3D (11,12,DXR), Vulkan (1.1, Vulkan Ray Tracing Extension), OpenGL, OpenVR, and the Oculus SDK.

[Read More >](#)

DATACENTER TOOLS

<https://developer.nvidia.com/datacenter-management-gpu>

Data Center Tools for NVIDIA GPUs

Home

NVIDIA GPU accelerated data centers are increasingly being used to run production deep learning and high-performance computing (HPC) applications. Teams of researchers, developers and data scientists share data center resources to design and develop software and algorithms, train deep learning models, run simulations, perform testing and validations, and also deploy applications and models to productions in the same or deployment data centers on-prem or in the cloud.

NVIDIA works closely with its ecosystem partners to provide developers and DevOps with software tools for every step of the AI and HPC software life cycle.

Develop, Train, Simulate

GPU-Optimized Containers

NVIDIA offers GPU-accelerated deep learning and HPC containers from NVIDIA GPU Cloud (NGC) that are optimized to deliver maximum performance on NVIDIA GPUs. The NGC container registry includes NVIDIA tuned, tested, certified, and maintained containers for the top deep learning software like TensorFlow, PyTorch, MXNet, TensorRT, and more. NGC also has third-party managed HPC application containers, and NVIDIA HPC visualization containers. This eliminates the need for developers, data scientists and researchers to manage packages and dependencies or build deep learning frameworks from source.

[Get NGC Containers >](#)

Manage and Monitor

Data Center GPU Manager (DCGM)

NVIDIA DCGM is a suite of tools for managing and monitoring GPUs in cluster environments. It includes active health monitoring, comprehensive diagnostics, system alerts and governance policies including power and clock management. It can be used standalone by system administrators and easily integrates into cluster management, resource scheduling and monitoring products from NVIDIA partners.

[Learn More and Download >](#)

NVIDIA Management Library (NVML)

NVML is an SDK for monitoring and managing various states of the NVIDIA GPU devices. It provides a direct access to the queries and commands exposed via nvml-smi. The SDK provides the appropriate header, stub libraries and sample applications.

[Learn More and Download >](#)

Software Downloads

Navigate from the developer homepage to the individual product pages and then to the corresponding download pages to install the latest and archived versions of our software. For each of our SDKs, we offer a complete range of installer types.

Local installers, local repos

These packages are usually larger and contain all the files needed to install on your development system

Network installer

The download is a thin client which downloads the latest version from a fixed web location

Network repos

Linux repos containing the latest and past releases, installable using “apt-get”

SDK Manager

Client side installation manager, currently delivering DRIVE and Jetson SW

NGC

Containers with pre-installed SDKs, runtimes, NVIDIA optimized frameworks

NGC

GPU-Optimized Software Hub Simplifying DL, ML and HPC Workflows

Accelerate Time-to-Solution

NGC accelerates productivity with easy to deploy, optimized AI frameworks, and HPC application containers so users can focus on building their solutions.

Simplify AI Adoption

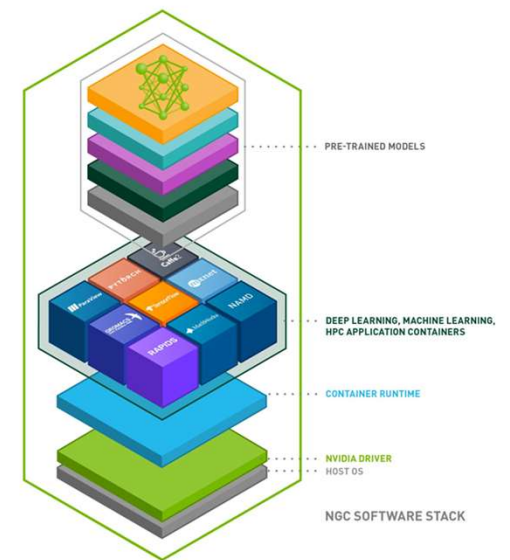
NGC lowers the barrier to AI adoption by taking care of the heavy lifting (expertise, time, compute resources) with pre-trained models and workflows with best-in-class accuracy and performance.

Run Anywhere You Have NVIDIA GPUs

Run software from NGC on-prem, in the cloud, or using hybrid deployments. This maximizes utilization of GPUs, portability, and scalability.

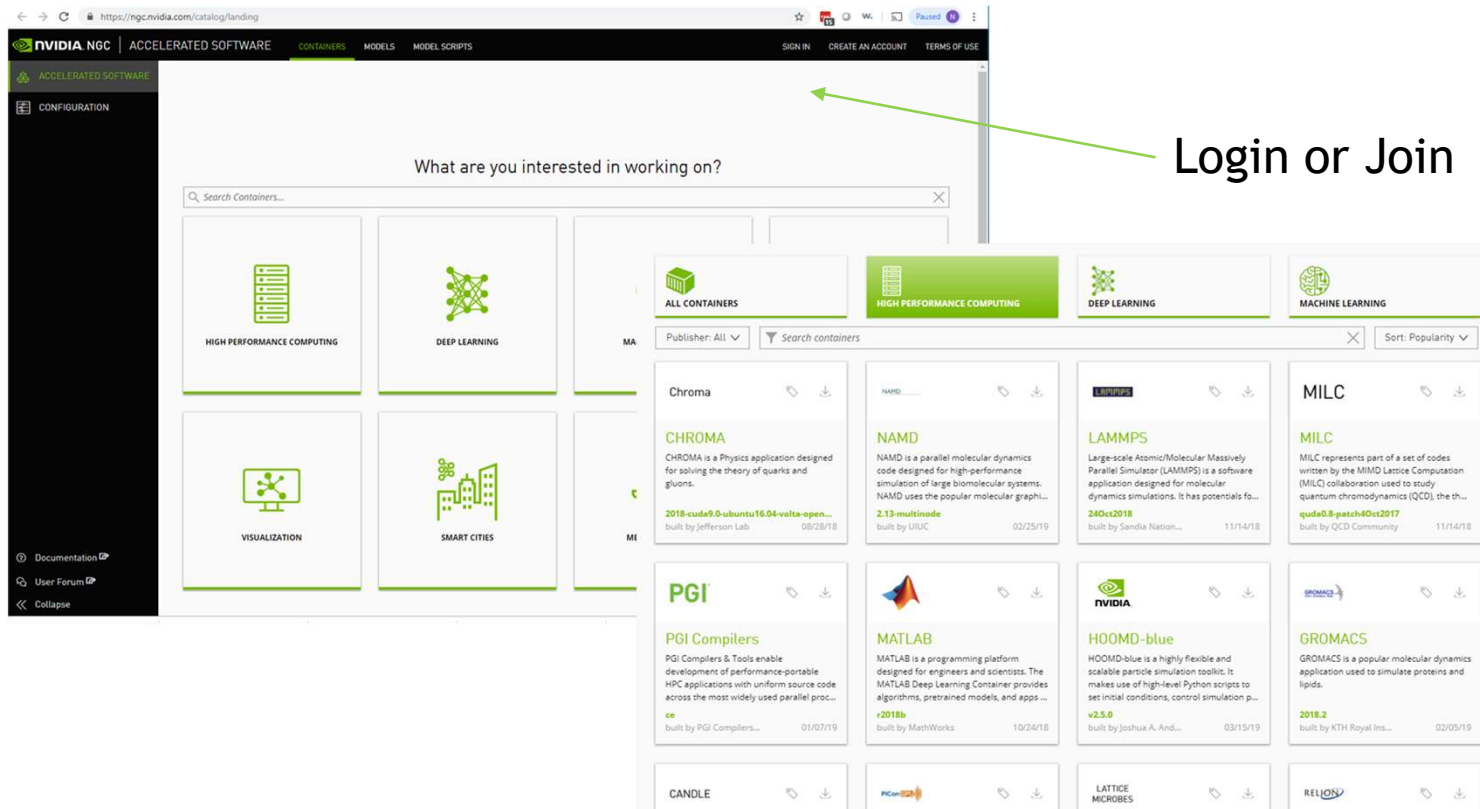
Deploy NGC Software with Confidence

Enterprise-grade support for NGC-Ready systems provides direct access to NVIDIA's experts, minimizing system downtime, and maximizing system utilization and productivity.



www.nvidia.com/ngc

NGC




50+ Containers
60 Models
15+ Model Scripts
2 Industry Solutions


Technical Documentation

Browse installation, programming, and performance guides by product

<https://docs.nvidia.com/>




NVIDIA Developer Documentation




CUDA Toolkit Documentation
The NVIDIA CUDA Toolkit provides a comprehensive development environment for C and C++ developers building GPU-accelerated applications.

[Browse >](#)




Jetson Software Documentation
The NVIDIA JetPack SDK, which is the most comprehensive solution for building AI applications, along with L4T and L4T Multimedia, provides the Linux kernel, bootloader, NVIDIA drivers, flashing utilities, sample filesystem, and more for the Jetson platform.

[Browse >](#)




NVIDIA DGX Systems Documentation
DGX Systems provide integrated hardware, software, and tools for running GPU-accelerated, HPC applications such as deep learning, AI analytics, and interactive visualization.

[Browse >](#)




NVIDIA Virtual GPU Software Documentation
NVIDIA virtual GPU (vGPU) software is a graphics virtualization platform that extends the power of NVIDIA GPU technology to virtual desktops and applications.

[Browse >](#)




NVIDIA GameWorks Documentation
Documentation for GameWorks related products and technologies including libraries (NVAPI, OpenAutomate), code samples (DirectX/OpenGL) and developer tools (Nsight, Tegra Profilers).

[Browse >](#)




Deep Learning Software Documentation
The NVIDIA Deep Learning SDK and Frameworks performance tuned for DGX Systems provide flexible and powerful software for creating, training, and inferencing custom deep neural networks for machine learning and artificial intelligence applications.

[Browse >](#)




NVIDIA DRIVE Platform Documentation
NVIDIA DRIVE Platform provides a comprehensive software and hardware solution for development of autonomous vehicles.

[Browse >](#)



NVIDIA GPU Cloud
NVIDIA GPU Cloud empowers AI researchers with fast and easy access to performance-engineered deep learning framework containers, pre-integrated and optimized by RAPIDS.

[Browse >](#)



CUDA Toolkit Documentation

CUDA Toolkit v10.1.168

Release Notes

EULA

Installation Guides

Quick Start Guide

Installation Guide Windows

Installation Guide Mac OS X

Installation Guide Linux

Programming Guides

Best Practices Guide

Maxwell Compatibility Guide

Pascal Compatibility Guide

Volta Compatibility Guide

Turing Compatibility Guide

Kepler Tuning Guide

Maxwell Tuning Guide

Pascal Tuning Guide

Volta Tuning Guide

Turing Tuning Guide

PTX ISA

Developer Guide for Optimus

Video Decoder

PTX Interoperability

Inline PTX Assembly

CUDA API References

CUDA Runtime API

CUDA Driver API

CUDA Math API

cuBLAS

NVBLAS

nvJPEG

cuFFT

nvGRAPH

cuRAND

cuSPARSE

NPP

NVRTC (Runtime Compilation)

Thrust

cuSOLVER

Miscellaneous

CUDA Samples

CUDA Demo Suite

CUDA PTI

CUDA Toolkit Documentation v10.1.168

Release Notes
The Release Notes for the CUDA Toolkit.

EULA
The End User License Agreements for the NVIDIA CUDA Toolkit, the NVIDIA CUDA Samples, the NVIDIA Display Driver, and NVIDIA NSight (Visual Studio Edition).

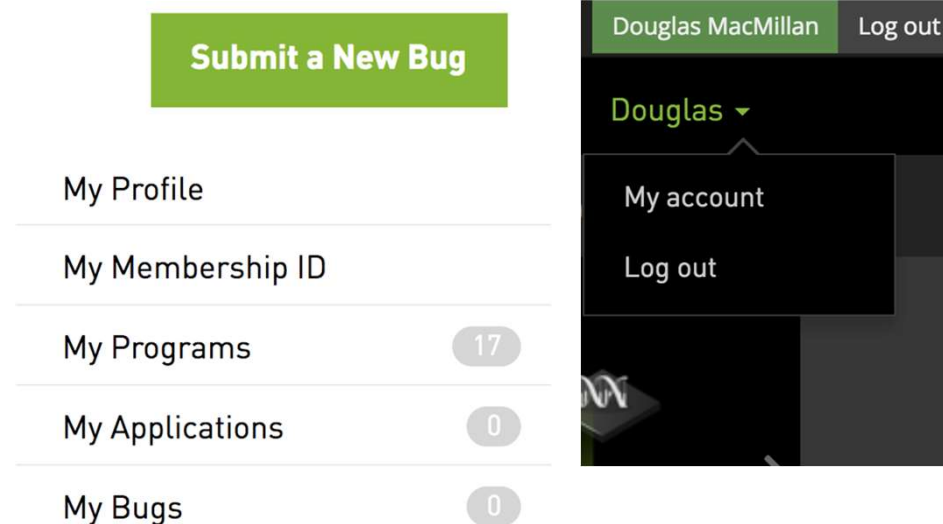
Installation Guides
Quick Start Guide
This guide provides the minimal first-steps instructions for installation and verifying CUDA on a standard system.
Installation Guide Windows
This guide discusses how to install and check for correct operation of the CUDA Development Tools on Microsoft Windows systems.
Installation Guide Mac OS X
This guide discusses how to install and check for correct operation of the CUDA Development Tools on Mac OS X systems.
Installation Guide Linux
This guide discusses how to install and check for correct operation of the CUDA Development Tools on GNU/Linux systems.

Programming Guides
Programming Guide
This guide provides a detailed discussion of the CUDA programming model and programming interface. It then describes the hardware implementation, and provides all CUDA-enabled devices, detailed description of all extensions to the C language, listings of supported mathematical functions, C++ features supported in host and concludes by introducing the low-level driver API.
Best Practices Guide
This guide presents established parallelization and optimization techniques and explains coding metaphors and idioms that can greatly simplify programming for best performance from NVIDIA GPUs using the CUDA Toolkit.
Maxwell Compatibility Guide
This application note is intended to help developers ensure that their NVIDIA CUDA applications will run properly on GPUs based on the NVIDIA Maxwell Architecture compatible with Maxwell.
Pascal Compatibility Guide
This application note is intended to help developers ensure that their NVIDIA CUDA applications will run properly on GPUs based on the NVIDIA Pascal Architecture compatible with Pascal.
Volta Compatibility Guide
This application note is intended to help developers ensure that their NVIDIA CUDA applications will run properly on GPUs based on the NVIDIA Volta Architecture compatible with Volta.
Turing Compatibility Guide

SUBMITTING ISSUES AND BUGS

1. Login to developer.nvidia.com
2. Follow the “My account” link below your username, top right
3. Follow “My Bugs” link on menu, bottom left
4. Log issues using “Submit a New Bug” button, top right
5. Follow progress of any submitted issues in My Bugs Section


https://developer.nvidia.com/nvidia_bug/add



FORUMS

Browse topics of interest and
get your product questions
answered

<https://devtalk.nvidia.com/>

 NVIDIA DEVELOPER

COMPUTEWORKS

GAMEWORKS

JETPACK

DESIGNWORKS

AGX - Autonomous Machines

Announcements

13 Topics
21 Comments

DRIVE AGX

201 Topics
1,015 Comments

Drive PX2

1,501 Topics
6,427 Comments

Isaac

91 Topics
340 Comments

Jetson & Embedded Systems

16,734 Topics
108,264 Comments

Deep Learning Training and Inference

Announcements

15 Topics
24 Comments

Deep Learning Framework

161 Topics
484 Comments

Deep Learning

1,445 Topics
4,708 Comments

Mixed-precision and Tensor Cores

32 Topics
1,528 Comments

NVIDIA Transfer Learning Toolkit for IVA Early Access (NEW)

25 Topics
86 Comments

Accelerated Computing

Announcements

292 Topics
641 Comments

CUDA Programming and Performance

35,217 Topics
170,448 Comments

CUDA Setup and Installation

3,426 Topics
14,193 Comments

GPU-Accelerated Libraries

1,486 Topics

Popular Topics

Unsupported ONNX data typ...

1

Problem with the 2nd boot...

30

Python wrapper for tensor...

14

int8 calibration, meet err...

5

RTX 2080 Ti doesn't work ...

26

Tx1 bluetooth problem

31

Analyzing sampleInt8 accu...

2

models in onnx zoo failed...

2

Error importing onnx: Uns...

1

Try running yolov3_onnx s...

1

Latest Topics

ID pin in USB 3.1 Micro A...

1

Power Button mechanism

1

Deploying a plan file on ...

1

OpenCL application crashe...

1

Why get all metrics with ...

1

Input blob does not being...

1

No speedup with tensorrt ...

1

Ubuntu boot delayed by ~3...

1

/dev/video0: No such file...

1

Flashing Failed device co...

1

Recent Activity

/dev/video0: No such file...

1

How to Send I2C Camera Co...

5

Jetson TX2 4GB Module

12

DEEP LEARNING INSTITUTE (DLI)

Hands-on, self-paced and instructor-led training in deep learning and accelerated computing

Request onsite instructor-led workshops at your organization:

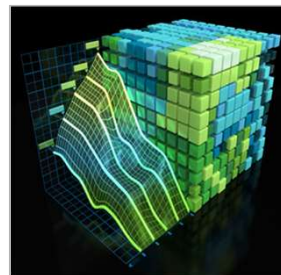
www.nvidia.com/requestdli

Take self-paced courses online:

www.nvidia.com/dlilabs

Download the course catalog, view upcoming workshops, and learn about the University Ambassador Program:

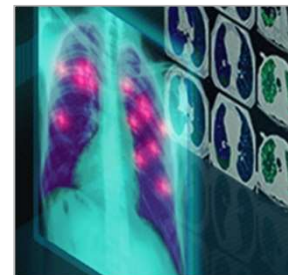
www.nvidia.com/dli



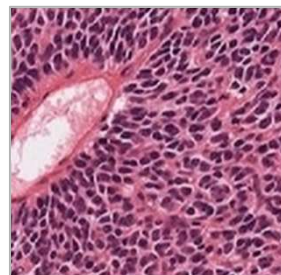
Accel. Computing
Fundamentals



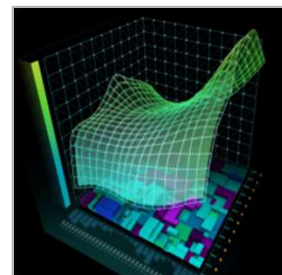
Autonomous Vehicles



Medical Image Analysis



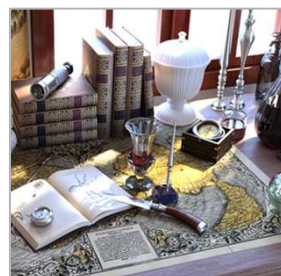
Genomics



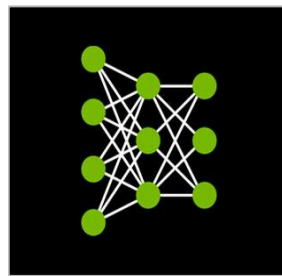
Finance



Digital Content Creation



Game Development



Deep Learning
Fundamentals

More industry-specific
training coming soon...

RESOURCES AVAILABLE TO STUDENTS

TO FURTHER EDUCATION

Developer Teaching Kits: <https://developer.nvidia.com/teaching-kits> which include free access to online training for students but they have to be requested by a lecturer/professor.

Academic Workshops:

The NVIDIA website lists free academic workshops that our Ambassadors are giving around the world that you can go and attend: www.nvidia.co.uk/dli

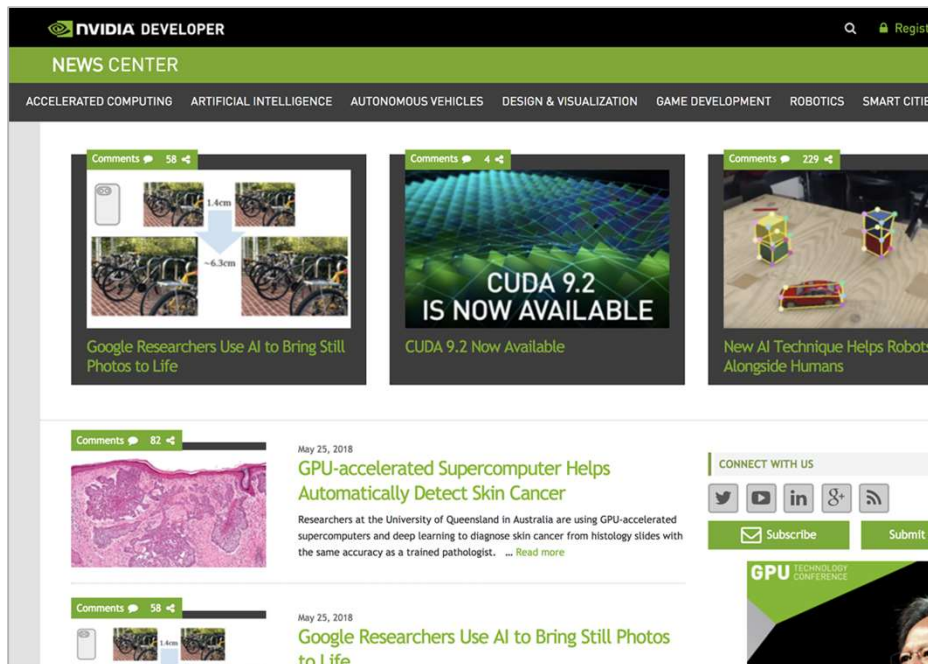
sign up in DevZone <https://developer.nvidia.com/developer-program>

sign up for our newsletters

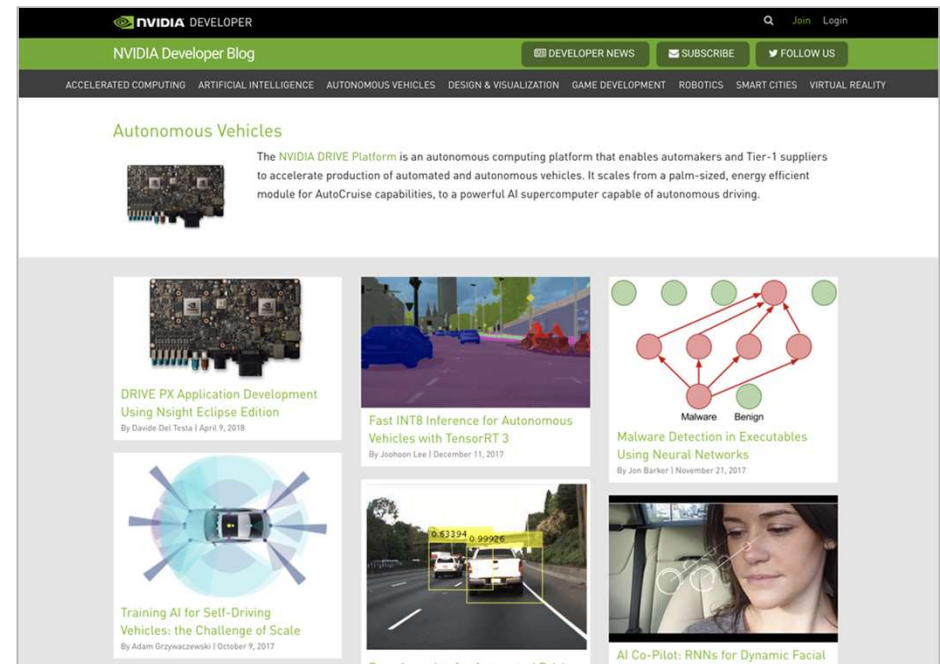
follow us on Twitter/Facebook NVIDIAEU so they can see when we have free webinars



DEVELOPER NEWS AND BLOGS



Developer centric news and announcements



Deeply technical how-tos

JOIN 1.3M DEVELOPERS CREATING THE FUTURE

developer.nvidia.com/developer-program



Thanks

Paul Graham, pgraham@nvidia.com

