



Call for Proposals: Simulation and Modeling

About This Call for Proposal (CFP)

NVIDIA has been transforming accelerated computing for more than 25 years. We're defining the next era of scientific computing and supporting top researchers doing compelling, computationally intense work to solve some of the world's most challenging problems. Developer programs support researchers in using our open models, SDKs, frameworks, and web services by providing training and creating online communities to help researchers do their life's work using NVIDIA technologies.

NVIDIA solicits proposals for innovative projects related to simulation and modeling that incorporate one or more of the following NVIDIA technologies: NVIDIA PhysicsNeMo, ALCHEMI™, BioNeMo™ and Digital Biology Research, Warp, cuEquivariance, cuLitho, Omniverse™, HPC SDK, cuPyNumeric, cuQuantum, or CUDA-Q™. Proposals should be attached to one or more of the following themes:

Scientific Simulation

Use numerical algorithms to solve PDEs, use machine learning to augment simulation, or use reinforcement learning with simulation in the loop. Simulation methodologies may be applied across various scientific and engineering disciplines. Research areas of interest may include:

- Materials science, life sciences, robotics, climate simulations
- Computational chemistry methods, including quantum chemistry, molecular dynamics, and hybrid AI methods
- Simulations and dynamics of cells (e.g., coarse-grained molecular dynamics or protein conformational ensembles)
- Physical Earth system science, including weather predictions, climate prediction and projection, air quality modeling, urban scale prediction, and seasonal-to-decadal modeling
- N-body simulations in astrophysics
- Multi-physics for high-energy physics
- The physics of fluid dynamics phenomena through computational methods
- Simulation techniques and digital twins for designing complex or large systems (e.g., hardware design)
- Integration with experimental and theoretical approaches

Quantum Computing

Contribute to the development and understanding of quantum computing technologies and address their fundamental challenges. Research areas of interest may include:

- Demonstrations of tightly integrated GPU-QPU workloads using NVIDIA NVQLink (NVIDIA RTX PRO™ 6000 only), coupling the RTX™ to supported and novel quantum control systems to develop methods for fast calibration, hybrid quantum/classical applications, and real-time error correction decoding
- GPU-accelerated methods for qubit electronic design automation (EDA), including EM field simulation for quantum chip design
- Quantum algorithm development and advanced simulation methods
- Quantum error correction codes and decoding techniques with algorithmic or AI methods
- Simulation of noisy quantum systems, time dynamics, and error mitigation techniques

Physics-Informed Machine Learning

Develop or apply machine learning techniques that are informed or constrained by physical laws, principles, and models. Research areas of interest may include:

- Machine learning systems for modeling physical phenomena, including physics-informed methods, neural operators, and innovative methods to leverage physical knowledge with data-driven techniques
- Hybrid methods that combine solving for physical equations and machine learning techniques on the fly
- Reinforcement learning to control physical systems

Award Details

Selected principal investigators (PIs) may receive:

- Up to 30,000 H100 80 GB hours or equivalent (max. of eight concurrent GPUs) or
- Up to eight NVIDIA RTX PRO 6000 GPUs (Max-Q workstation or Server Edition)

Not all projects that meet eligibility requirements will be selected for an award. The final award amount will be determined by the NVIDIA awards panel. GPU hours provided to the PI will expire six months after the award; unused GPU hours will be forfeited. Physical hardware will be shipped to the PI.

Applicant Eligibility

Full-time faculty at accredited academic institutions that award research degrees to Ph.D. students are eligible. Postdocs and graduate students must work with a full-time faculty member to submit on their behalf.

Each person can submit one proposal per quarter, a maximum of four proposals annually. For example, one submission is allowed in the first quarter, January–March. Each individual applicant is eligible to receive one award per calendar year.

Proposal Requirements

Proposals **must** follow the [proposal template](#) and should not exceed **four pages**, not including appendices.

Expectations of Recipients

Award recipients should make reasonable efforts to acknowledge the support of NVIDIA Corporation and reference how specific hardware and software contributed to project results. Recipients will inform NVIDIA of publications, presentations, open-source code and data releases, and speaking engagements that reference the supported project via the NVIDIA academic grant portal. Failure to report in the portal will influence future award selection.

Please review NVIDIA Academic Grant Program [terms and conditions](#).

