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CUDA Center of Excellence (CCOE) Program

The CUDA Center of Excellence (CCOE) program recognizes, rewards, and fosters collaboration with institutions at the forefront of massively parallel manycore computing research. CUDA Centers of Excellence have demonstrated a unique vision for improving the technology and application of parallel computing. Through the CUDA Centers of Excellence NVIDIA intends to:

- Empower academic researchers to do world-changing research, by dramatically increasing the computing power available to scientists and engineers - on the desktop, in the laboratory, and in the data center.
- Improve the state of parallel computing education, to train the next generation of computer scientists and computational scientists for a world of massively parallel computing.
- Establish research, educational, and recruiting relationships with the foremost academic institutions in the world.

The CUDA Center of Excellence program is competitive and prestigious. Institutions meeting the requirements are invited to submit proposals to NVIDIA at any time; proposals will be evaluated on a rolling basis.

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Eligibility

Any institution whose primary goals include both research and education may apply for CUDA Center of Excellence status. Non-university research institutions that qualify for the educational component, for example by partnering with a university, may also apply. However, most non-university research institutions should consider applying to the CUDA Research Center program.   University faculty who are not yet teaching or just starting to teach CUDA C/C++

GPUComputing.net
GPGPU.org

should consider applying to the CUDA Teaching Center program.

Proposals for a CUDA Center of Excellence award will be evaluated on:

- The vision presented by the proposal for improving the technology and application of massively parallel computing.
- The quality, quantity, and diversity of ongoing research at the institution.
- The commitment to, and depth of, educational plans for teaching CUDA C/C++ and massively parallel computing.
- The likelihood of broad impact including importance of the application areas, likelihood of success, plans for deployment of research results, and the caliber of researchers and institutions involved.

NVIDIA invites proposals to *apply* GPU computing (e.g. to various scientific and engineering problems), or to *improve* GPU computing (e.g. with higher-level libraries or languages, compiler research, etc.), or both.

Requirements

An institution proposing a CUDA Center of Excellence will describe a *research vision* for massively parallel computing research built around NVIDIA CUDA technology. NVIDIA welcomes research visions that advance the state of both application domain research such as computational science & engineering, finance, etc., and "core" computer science and engineering topics such as parallel architecture, programming languages and compilers, numerics, etc.

Institutions applying for CCOE award must already satisfy two minimal requirements:

- Demonstrate promising research results involving CUDA architecture GPUs or GPU computing technologies in at least 3 separate research laboratories or projects.
- Teach one or more courses on a recurring basis, ideally accessible to domain computational scientists as well as computer scientists, that introduce students to CUDA C/C++ and provide them the background to try CUDA C/C++ in their own projects. Non-university research institutions can qualify for the teaching component by partnering with a university.

Other Possible Elements

In addition to the above requirements, a CUDA Center of Excellence may involve many other specific elements. Institutions proposing a CCOE are encouraged to think creatively about various ways that the institution and NVIDIA can work together. For example, a CCOE proposal may request that NVIDIA:

- Provide educational materials for use in teaching CUDA C/C++.
- Donate equipment to support courses teaching CUDA C/C++.
- Donate equipment to support a small research cluster.
- Partner with other hardware vendors, for example to provide host machines for teaching labs and research clusters.
- Provide CUDA C/C++ training, either generic CUDA C/C++ tutorials or advanced domain-specific workshops.
- Provide access to prerelease hardware and software to enable research on next-generation technology.
- Designate specific NVIDIA researchers and engineers to serve as a "point of contact" for the CUDA Center of

Excellence institution.
- Provide discounted hardware for large-scale purchases and in-kind cost matching purposes.
- Give cash in the form of a grantor unrestricted gift.

Institutions hosting CCOEs may additionally propose to:

- Make CUDA C/C++ courses available online.
- Develop and release domain-specific libraries and packages.
- Host domain-specific workshops or conferences relevant to CUDA.
- Host a CUDA capable GPU cluster for use within the institution and available, within reasonable restrictions, to a specialized external research community.
- Cooperate in joint publicity efforts (such as press releases, launch events, etc.) showcasing work at the institution.

The above items are just intended as examples and are neither required nor necessarily representative.

Duration

Each CUDA Center of Excellence award has an intended duration of up to three years, subject to NVIDIA receipt and approval of an annual report. Renewal each year is at the sole discretion of NVIDIA. Centers are renewable beyond the three-year duration upon invitation by NVIDIA; if invited, a proposal to renew a CCOE will be reviewed competitively and upon its own merit. The annual report should highlight publications, results, courses, and projects supported by the CCOE. The contents of the report will be used in joint publicity efforts by NVIDIA and the CCOE institution.

Application Process

Institutions proposing a CUDA Center of Excellence should submit a short proposal to CCOEproposal@nvidia.com. Proposals should be in PDF format and should consist of no more than 5 pages motivation and description including budget, up to 5 pages supplementary material detailing previous or envisioned research including references, and a biographical sketch or condensed curriculum vita, which must be no more than 2 pages per principal investigator.

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