2023 NSF-sponsored Online Workshop on Deep Learning Systems in Advanced GPU Cyberinfrastructure (DL-GPU)

With the recent advancements in artificial intelligence, deep learning systems and applications have become a driving force in multiple transdisciplinary domains. While this evolution has been largely supported by the rapid improvements in advanced GPU cyberinfrastructure, comprehensive training materials are generally absent that combine application-driven deep learning techniques with the implementation of such techniques using the GPU cyberinfrastructure. To fill in this gap, DL-GPU training program provides two-week online training on the key skills, approaches, and tools to design, implement, and execute leadership-class deep learning systems in advanced GPU cyberinfrastructure. This training program includes an online workshop that comprises of a set of interdisciplinary cutting-edge training sessions offered by six faculty members from five disciplines in four research universities. With a focus on the latest innovations in GPU-based deep learning systems and applications, this workshop fosters a community of the next-generation cyberinfrastructure users and contributors, who can use, develop, and improve advanced GPU cyberinfrastructure for their deep learning research. Such training efforts enhance the knowledge of the deep learning and GPU cyberinfrastructure workforce, and subsequently contribute to the solutions of important scientific and societal problems.

The interdisciplinary online workshop aims at enabling participants, including undergraduate seniors/juniors, graduate students, and researchers (such as postdocs, scientists, and faculty members), to improve their multidisciplinary skillsets, extend their academic research portfolios, develop their remote collaboration capacities, and significantly strengthen their career competitiveness. To achieve this goal, the workshop includes 1) a set of hands-on lecture modules that provide trainees with comprehensive knowledge and skills on the full stack of deep learning systems in advanced GPU cyberinfrastructure, 2) a series of invited talks on advanced GPU cyberinfrastructure, deep learning systems, and related applications given by renowned scientists from academic and industrial research institutes, and 3) remote open-ended interdisciplinary collaborative projects that apply techniques introduced in lectures into practice. The training workshop is expected to develop a future research workforce in deep learning systems and applications and to broaden the adoption of advanced GPU cyberinfrastructure in research and education.

IMPORTANT DATES:
- Application due: June 1, 2023
- Notification of acceptance: June 15, 2023
- Virtual event of DL-GPU workshop: July 23 - August 5, 2023

APPLICATION ELIGIBILITY:
1) Being a U.S. citizen, permanent resident, or holding a legal status (e.g., F-1 and H-1B visa) in the U.S.;
2) Must stay in the United States during the workshop;
3) Broadband access to high-speed internet for online lectures, exercises, and discussions during the workshop;
4) Familiarity with python programming and deep neural networks;
5) All the transcripts with a minimum GPA of 3.5 for student applicants;

6) For interdisciplinary collaboration, this workshop is oriented for applicants with computer science and engineering (CSE) major and non-CSE major (e.g. geoscience);
7) For diversity, equity, and inclusion, underrepresented groups are strongly encouraged to apply.

REQUIREMENTS ON PARTICIPANTS:
1) Fully attend the DL-GPU workshop.
2) Each three-person project team is required to complete and submit one 8-page paper to the Workshop on Software and Hardware Co-design of Deep Learning Systems on Accelerators (SHDA) in conjunction with ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (SC) by August 16, 2023.

BENEFITS:
1) $1,000 will be paid to each participant who completes the tasks of this workshop.
2) Registration fee reimbursement for remote paper presentation in the SC workshop.

HOW TO APPLY:
Please send your email, titled "DL-GPU workshop application", with the following materials attached, to Dr. Tong Shu at tong.shu@unt.edu .
1) Curriculum Vitae (CV)
2) All the transcripts (from B.S to present) for student applicants
3) Statement of purposes (SoP) with no more than one page
4) The home country and a specific legal identity in the U.S. must be pointed out in CV and SoP.
5) Strongly recommended to provide a GitHub link showing the applicant' previous source codes
6) A reference letter from the applicant's supervisor is preferred (unnecessary for faculty applicants)

SYLLABUS: