PRESS RELEASE

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HPC-AI Advisory Council Announces Results for the 5th APAC HPC-AI Competition

The six-month long competition pushed the student HPC teams to develop HPC and AI powered solutions for the global challenges facing human health and environmental sustainability

Sunnyvale, CA / Singapore – November 17, 2022 – Dallas, SC2022. The HPC-AI Advisory Council, National Supercomputing Centre (NSCC) Singapore and National Computational Infrastructure (NCI) Australia, today announced the results of the fifth iteration of the regional APAC HPC-AI student competition. The National Tsing Hua University NTHU-CM team were crowned the overall champions while the teams from the Southern University of Science and Technology and The National Tsing Hua University NTHU-YC tied for second place. Teams from the National Cheng Kung University, Thammasat University, University of New South Wales and Universiti Putra Malaysia garnered third placing. The Australian National University, Griffith University and Singapore A*STAR teams each won merit prizes. The Thammasat University team from Thailand won the award for best HPC performance. The Taiwan National Cheng Kung University won the award for the best deep learning performance and the Taiwan National Tsing Hua University NTHU-CM won the award for best big data analytics performance. The Singapore A*STAR team also won the award for the best presentation performance.

The jointly organized 2022 APAC HPC-AI Competition included tasks and challenges focusing on three of the hottest research topics and mission critical issues that leverage the power of HPC and AI technologies to develop more in-depth understanding of the tasks and find solutions to help improve the issues of human health as well as the sustainability of our planet's resources and environment. These topics include developing

future green energy mechanisms using HPC technology (Quantum ESPRESSO); analyzing and training satellite data using AI technology for better climate modelling and weather forecasting (DASK); and using deep learning technologies to perform DNA Sequence Fast Decoding for enhanced disease prevention and medical care.

Throughout the competition, the teams contributed amazing performance improvements for different tasks using creative ideas and innovative code execution. Teams utilized advanced profiling tools to analyze the computing and communication operations to understand where bottlenecks occurred in the applications, and worked to optimize the performance. For example, the students were able to produce Quantum ESPRESSO data that was close to linear scalability from one server to 32 servers, and DASK performance was tripled from the baseline performance.

During the competition, all teams received computing resource support from NSCC Singapore and NCI Australia. HPC-AI Advisory Council invited industry leaders for each task to help mentor students on the fundamentals of the HPC and AI technologies. The final interviews were conducted by reviewers from global HPC and AI centers, such as The Ohio State University, The University of Massachusetts, Singapore A*STAR, NSCC Singapore, NCI Australia, Australia Pawsey Supercomputing Center, and NVIDIA.

“HPC and AI are the most essential tools fueling the advancement of science. To continue this advancement and meet the needs of increasingly complex research problems, the education and mentorship of new and rising talent worldwide are key,” said Gilad Shainer, Chairman of the HPC-AI Advisory Council. “Through our previous competitions, and the support of NSCC Singapore and NCI Australia, many participants have moved on to become core developers in top HPC and AI organizations. Congratulations to this year’s bright participants, and we look forward to watching your careers advance and grow.”

"The fifth APAC HPC-AI competition once again shows the breadth and depth of regional young HPC talent as it continues to grow at a rapid pace," said Associate Professor Tan Tin Wee, Chief Executive of NSCC Singapore. "We congratulate all the participating teams and winners of the different categories who have once again shown the determination and innovativeness that make them the future of Asia Pacific's HPC community."

"Development of HPC AI platform capabilities is a key strategic objective at NCI Australia. Events such as the APAC HPC-AI student competition constitute timely milestones that facilitate build-out of the capabilities on NCI's Gadi HPC and Nirin cloud infrastructures. NCI staff take the learnings on our side forward and hence make better platform capabilities available for other parts of our Australian research ecosystem. We appreciate the collaboration with our partner organizations and the enthusiastic participation and brilliant skills of the students." said Prof Sean Smith, Director at NCI Australia.

The 5th APAC HPC-AI Competition Award ceremony will be held during the SupercomputingAsia 2023 conference, Singapore from 28 February – 2 March 2023.

For more information on the APAC HPC-AI Competition please visit www.hpcadvisorycouncil.com.

About HPC-AI Advisory Council
Founded in 2008, The HPC-AI Advisory Council (HPCAIAC) is a for community benefit organization with over 450 members committed to promoting HPC and AI through education and outreach. Find out more, become a member @ hpcadvisorycouncil.com

About National Supercomputing Centre Singapore
Established in 2015, the National Supercomputing Centre (NSCC) Singapore manages Singapore's first national Petascale facility providing high performance computing (HPC) resources. As a National Research Infrastructure, NSCC supports private and public sector research including commercial companies, government agencies as well as higher education and research institutes. Through the support of its stakeholders including the Agency for Science Technology and Research (A*STAR); Nanyang

Technological University (NTU); National University of Singapore (NUS); Singapore University of Technology and Design (SUTD); the National Environment Agency (NEA) and Technology Centre for Offshore and Marine, Singapore (TCOMS); and funded by the National Research Foundation (NRF), NSCC catalyses national research and development initiatives, attracts industrial research collaborations and enhances Singapore's research capabilities. For more information, please visit: nscc.sg

About National Computational Infrastructure (NCI) Australia

The National Computational Infrastructure (NCI) is Australia's leading high-performance data, storage and computing organisation, providing expert services to benefit all domains of science, government and industry. NCI brings the Australian Government and the Australian research sector together through a broad collaboration involving the largest national science agencies, universities, industry and the Australian Research Council. NCI empowers government agencies, universities, and industry across multiple domains of research. Our integrated hardware, services and expertise drive high-impact research and groundbreaking outcomes for Australia.