中央研究院統計科學研究所

學 術 演 講

講 題：Utilizing and Extending AI/ML/VR Accelerators for Statistical Tensor Algorithms

演 講 人：Prof. Hung-Wei Tseng
Department of Electrical and Computer Engineering,
University of California, Riverside

時 間：2025-01-06(Mon.) 10:30-12:00

地 點：Auditorium, B1F, Institute of Statistical Science；The tea reception will be held at 10:10.

備 註：Lecture in English. Online live streaming through Cisco Webex will be available.

Abstract

As the performance improvements of general-purpose processors or even GPUs fall behind the rapid growth of demands in AI/ML and reality applications, modern computers rely on hardware accelerators that use specialized circuits for a target application domain to support the desired user experience. However, applications besides these hardware-accelerated domains still suffer from the retarded performance improvements. Theoretically, these accelerators can benefit a broader spectrum of applications since their circuits implement mathematical functions or simulate physical phenomena that many problems can leverage in their solutions. However, as these accelerators typically simplify the supported functions for their target domains, using them for other applications becomes challenging.

Hung-Wei will share his recent experiences using and extending modern AI/ML and ray tracing accelerators for the most critical tensor linear algebra problems in this talk. Hung-Wei will discuss using low-precision matrix multipliers that AI/ML accelerators provide to perform standard precision matrix operations that general-purpose linear algebra needs. Hung-Wei will also present the use of ray-tracing hardware to address the tree search problems and sparse matrix problems.

中 央 研 究 院

統計科學研究所