Personalized Learning Plan

Create Study Schedule

Study Plan for Advanced High-Performance Computing Curriculum

Week 1-2:

Module 1: Flynn's Taxonomy in High-Performance Computing

Exploring the impact of Flynn's Taxonomy on scalability and efficiency in HPC clusters. Analysis of key properties such as vectorization, pipelining, and Master-Slave architecture.

Week 3-4:

Module 2: Parallelism in Computer Clusters

Understanding how parallelism is utilized in computer clusters for high-performance computing. Identifying key challenges in designing and optimizing parallel algorithms for HPC clusters.

Week 5-6:

Module 3: Architecture of Distributed Computing Systems

Examining the architecture of distributed computing systems with high-speed servers and centralized schedulers. Analyzing the efficiency and scalability benefits compared to traditional centralized systems.

Week 7-8:

Module 4: CPU vs GPU Selection in Distributed Computing

Comparing the impact of high-performance multi-core CPUs and GPUs on distributed computing system performance. Evaluating their effectiveness in handling mathematical calculations, machine learning models, and graphics tasks.

Week 9-10:

Module 5: Design Considerations for Large-Scale HPC Clusters

Discussing the architectural design factors for large-scale HPC clusters with 100,000 nodes. Addressing aspects like communication efficiency, load balancing, fault tolerance, and scalability for optimal performance.

Week 11-12:

Module 6: Linux in HPC Cluster Management

Exploring how Linux architecture contributes to managing and optimizing performance in HPC clusters. Identifying essential distributed computing concepts for efficient operation and scalability in high-performance computing environments.

Week 13-14:

Module 7: Operating Systems in Distributed Computing

Comparing distributed computing principles across Windows, Ubuntu, and Unix operating systems. Analyzing the implications of these differences on design and performance of distributed systems on each OS.

End of Plan

Thank you for using Aura's Learning Plan Generator!