This special topic course introduces students to the fundamentals of interconnection networks in modern many-core processors, GPUs, high-performance computing systems, and datacenters, which are playing crucial roles in many sectors of society.

Students will understand the basic principles in connecting various homogenous and heterogeneous components to form large on-chip and off-chip computing systems. This term will also feature the architecture and interconnects of GPUs. Commercial design examples as well as recent research outcomes will be studied. Course workload includes a few homework assignments, one paper presentation, and a medium-load project with a variety of subject choices to increase the students’ expertise in their interested topics. By completing this course, students will establish a good understanding on the design of interconnection networks, as well as develop a strong knowledge base for conducting further R&D in the related fields in academia and industry.