Speaker:
Dr. Ko-Chih Wang
(Computer Science and Information Engineering at National Taiwan Normal University)

Topic:
Large-scale Scientific Data Processing and Visualization

Abstract:
As the advance of large-scale supercomputers enable scientists to model complex physical phenomena and produce a huge amount of datasets, handling these datasets to understand the science becomes a daunting challenge. In this talk, I will discuss how visualization helps scientific data understanding and the scheme to handle large-scale simulation datasets. The first part of the talk will briefly introduce the connections between visualization and data analysis. In the second part of the talk, I will discuss the challenges of scientific data visualization and analysis in the era of big data. One challenge is the long I/O time for simulation data movement from the supercomputer to the post-analysis machine. The other one is the requirement of considerable disk space to keep all datasets for interactive data analysis. Integrating in situ data processing and machine learning becomes a promising solution for large-scale data challenges. They have successfully demonstrated the power and flexibility to handle large datasets for data visualization and analysis from a variety of simulations. In the end, I will finish the talk with important open questions and research directions.

Biography:
Dr. Ko-Chih Wang is an Assistant Professor of Computer Science and Information Engineering at National Taiwan Normal University. He founded the ViDA (Visual Data Analysis) research group. His research interests include the data visualization and analysis of large scientific simulation data, computer graphics, and high-performance computing. He received the BS degree in computer science from Tunghai University, in 2004, and the MS degree from the Graduate Institute of Networking and Multimedia, National Taiwan University, in 2007, and the Ph.D. degree in computer science from The Ohio State University, in 2019.