

## Computing with the Latest and Greatest

### DESCRIPTION

In this introductory seminar, we will explore the state-of-the-art in high-end computing, including computers, processors, networking, and visualization. We will cover topics that include “high-performance computing,” “supercomputers,” “clusters,” “grid computing,” “cyberinfrastructure,” “green computing,” “graphics processing units,” “3D visualization,” and “immersive visualization,” to name a few. We will visit local laboratories and observe activities of production and research systems that include very large computers, very powerful computers, very large storage devices, significant networking, and related resources. We will visit laboratories and experience immersive visualization systems, where we will put on 3D goggles and feel as if we are in the middle of the environment, as opposed to watching a 3D movie like Avatar. We will discuss how the world has come to rely on such high-end systems and will talk about academic and industrial opportunities in a variety of these fields. If you are interested in finding out more about state-of-the-art computing and are able to read this material on-line, then you have the necessary prerequisites. Come and explore.

### ABOUT THE INSTRUCTOR

Dr. Russ Miller, UB Distinguished Professor of Computer Science and Engineering, has co-authored seminal papers in the field of high-performance computing and parallel algorithms in domains that include fundamental operations, molecular structure determination, monitoring and scheduling systems, computational geometry, and image analysis, to name a few.. He has published nearly 200 papers, chapters, and abstracts of presentations at national and international meetings and has co-authored two textbooks on parallel and sequential algorithms. His work in theoretical and applied parallel algorithms led to his work in molecular structure determination, which was recognized by the IEEE poster “Top Algorithms of the 20<sup>th</sup> Century.” Dr. Miller founded UB’s Center for Computational Research, where he served as Director from 1998-2006. Under Miller’s leadership, CCR served as a model for infrastructure required to enable 21<sup>st</sup> century discovery and, for a brief period, was the largest academic supercomputing center in the world. During this period, Miller was, in part, responsible for efforts that led to the establishment of the Center of Excellence in Bioinformatics and significant growth at UB and in the Buffalo Medical Corridor. Miller was Founding Executive Director and member of the Governing Board of NYSGrid, a cyberinfrastructure initiative in New York State. More recently, Miller’s Cyberinfrastructure Laboratory acquired a 12,000+ processor system, which is one of the most powerful machines in New York State. Dr. Miller was born in Flushing, NY, grew up on Long Island (Huntington), and spent time in San Diego and Binghamton before arriving in Buffalo in 1985. His children all graduated from Williamsville East High School before attending college. Please visit his web site at [www.cse.buffalo.edu/faculty/miller](http://www.cse.buffalo.edu/faculty/miller).