

Computer Science Department

Presents

“The Entropia Desktop Grid System and Applications in Life Sciences”

**Andrew A. Chien, SAIC Chair Professor
UC San Diego
CTO, Entropia, Inc.**

Wednesday, October 16, 2002
12:30 – 1:30 pm.
CS Classroom (room 342)
1890 Maple Avenue, 3rd floor

Abstract:

Desktop PC Grids (or distributed computing) have the potential to deliver dramatic increases (100x) in computing power and disk bandwidth. This potential has been demonstrated in public "volunteer" projects involving 10,000 or more PC's, and now in commercial enterprise software products. We describe the Entropia systems architecture, detailing its internal architecture and technologies used to provide a robust, flexible system. In particular, we will describe the security model and the use of binary sandboxing technology for security, unobtrusiveness, and application control. How this model supports open binary application integration, enabling rapid application adaptation.

We describe the use of desktop PC Grids to accelerate computational modeling and search applications critical to drug discovery. Typical applications are drawn from Bioinformatics (BLAST, etc.), Molecular docking (DOCK, Gold, etc.) and Computational Chemistry (GAMESS, Charmm) and all involve large numbers of independent parallel runs. Some of these applications involve the use of significant quantities of data (either sequence or molecular databases), and large amounts of computation.

Recent efforts in grid standards (OGSA) represent an opportunity to unify desktop and server grids. We will comment on these developments and how these efforts are likely to converge, but remain distinct.

Biography:

ANDREW A. CHIEN is the Science Applications International Corporation (SAIC) Chair Professor in the Department of Computer Science and Engineering at the University of California, San Diego (UCSD). He is also the Chief Technology Officer, Chairman, and Co-Founder of Entropia, Inc. Dr. Chien's research and technology expertise includes distributed computing, networks, communication software, distributed systems, middleware, operating systems, compilers and computer architecture. His previous affiliations include the University of Illinois, the National Center for Supercomputing Applications (NCSA), and the Massachusetts Institute of Technology. He received his S.B., S.M., and Sc.D. degrees all from M.I.T. He has received numerous awards and recognitions for his research.