

**McLeod Institute of Simulation Sciences,
California State University, Chico
Annual Report, July 2006**

Introduction

The MISS center at Chico has undergone significant change since it was approved as the first ever MISS center in 1985. This change has reflected both the administrative changes that have occurred over the past 20 years, and the changes in the status and composition of the Institute faculty. The Chico center and subsequently the entire MISS network owe their existence, of course, to the vision and persistence of MISS Founder and Chico MISS Center Director Emeritus, Dr. Ralph Huntsinger. Although now officially retired from Chico State, Ralph continues to invest his considerable energy into both the Chico center and his never failing outreach activities. Ralph has recently completed a tour of duty at the Bialystok Technical University in Poland, and has also led the creation of the M&S-TSA conference that now forms part of the Summer Simulation Multiconference.

Dr. Roy Crosbie is also now retired as a Chico State faculty member although he continues to serve as Director of the Chico Center.

Courses and programs in Modeling and Simulation are currently being overhauled and are now jointly administered by the Departments of Computer Science and of Electrical and Computer Engineering.

Key Projects

The Center continues to work on projects funded by the US Department of Education through its Fund for the Improvement of Post-Secondary Education (FIPSE), and the Office of Naval Research (ONR). Both of these activities have involved outreach efforts with other MISS centers.

The current FIPSE project, the third in the past 10 years, involves a consortium of three US and four European Universities. The members of the consortium are

California State University, Chico (US Lead)
University of Nebraska-Lincoln
University of Alabama at Huntsville

University of Hamburg (European Lead)
University of Glasgow
Technical University of Budapest
University of Aarhus

The aims of this collaboration are to develop Internet-based course materials in both the methodology and applications of modeling and simulation. The selected delivery platform for the on-line courses is Dokeos which is freely available to educational institutions. So far the collaboration has produced sets of course notes on Discrete Simulation and on Medical Applications. It is also producing two simulations, one of a

multi-modal transportation system (road, rail, waterway) and the other a medical application, which can be used as the basis of collaborative team projects for students in different countries.

Details of this project can be found at <http://useenet.informatik.uni-hamburg.de>

Research funded by ONR on high-speed real-time simulation is also continuing. This work has now been expanded to include collaboration between Chico State, the University of South Carolina, and the University of Glasgow who are together developing techniques for multi-rate real-time simulations. The Chico center recently took delivery of an OPAL-RT real-time simulation system that features two dual-Opteron processors, high-speed digital and analog I/O and a capability to perform very high speed component simulations using an FPGA. It is planned to interface this to the Chico, DSP-based simulator as part of the investigation of multi-rate real-time simulations. This research has provided research assistantships and thesis topics for a large number of graduate students.

Honors

Visiting Research Professor, Dr. Nari Hingorani, who is a consultant to the ONR Research group was awarded the Franklin Medal and the 2006 Bower Award by the Franklin Society. This award is presented for outstanding technical and scientific contributions. It has previously been awarded to Marie Curie, Albert Einstein, Max Planck, Thomas Edison, Stephen Hawking and many other eminent scientists. The 105 previous recipients have been awarded a total of 107 Nobel Prizes between them. The Bower Award, which accompanies the Franklin Medal, includes a cash award of \$250,000. Dr Hingorani was presented with a commemorative plaque by Chico State at a dinner in July 2006 recognizing his achievements and expressing its gratitude for his contributions to research at the University.

Publications and Conferences

The Chico center continues to organize a double-session panel on Real-time and Non-real-time Simulations for Marine Applications at the Huntsville Simulation Conference and has organized a session on Real-time Power Electronics Simulation as part of the M&S –TSA conference in Calgary this summer.

Papers were also presented at several conferences and workshops including the SCS SpringSim, the IEEE Workshop on Technology for Navy Electric Ships, an ONR/DARPA Workshop on Future Technology for Electric Ships, and the IEEE Power Engineering Society Annual Meeting.

Educational Programs

Through its McLeod Institute and School of Graduate and International Programs, California State University, Chico continues to offer its MS program in Simulation Sciences. As mentioned earlier the program is currently undergoing a review.

Roy Crosbie, July 2006