Evolutionary Designing Feast
Thursday, October 31, 2002
4:30 pm – 7:10 pm
Krasnow Institute for Advanced Study

Key Note Address:

“Poor-definition, Uncertainty and Human Factors + Interactive Evolutionary Design = Innovation and Discovery?”

Professor Ian Parmee
The University of the West of England, Bristol, England

ABSTRACT

Ill-definition and uncertainty are primary characteristics of conceptual design processes. Initially, little knowledge appertaining to the problem at hand may be available. A primary task relates to improving problem definition in terms of variables, constraint and quantitative and qualitative objectives. The design space develops with information gained in a dynamical process in which the decision-maker plays a major, interactive role. Machine and human-based search and exploration support and stimulate innovation, creativity and discovery as a sufficiently defined problem space emerges. The presentation discusses how evolutionary computing, complementary computational intelligence techniques and interactive systems can support such exploratory problem formulation.

Biographical Sketch

Ian Parmee has several years experience in both the contracting and consultancy sectors of the civil engineering industry. He returned to an academic career in 1991 playing a major role in the development of Plymouth University's EPSRC Engineering Design Centre investigating the integration of evolutionary computing technologies with engineering design. He has now joined the University of the West of England, Bristol where he is currently establishing research in the area of evolutionary design and decision-making. His research
has resulted in over one hundred publications in journals, conference proceedings and books.

**Additional Attractions:**

**Multi-population and Co-evolutionary Designing:**
**General Introductions**

Tomasz Arciszewski  
IT&E School  
George Mason University

**Co-evolutionary Designing: Game Theory Approach**

Kenneth Shelton  
Ph.D. Student  
IT&E School  
George Mason University

**Demonstration of INVENTOR 2001**

Rafal Kicinger  
Ph.D. Student  
IT&E School  
George Mason University