Research Project Activity

I. Funded Research

- Incorporating Data Envelopment Analysis Into Evolutionary Algorithms (Funded by PSU Faculty Enhancement Program)

  Award: $10,000   Date: 6/01 - 8/01
  Co-investigator: Dr. Timothy Anderson (ETM Dept.)

- Donation of Lattice Analog ispPAC Designer System

  Award: $1,200 (equipment grant)   Date: 8/01
  Co-investigator: Dr. Ed Ramsden (Lattice Semiconductor)

  Equipment used for collaborative research project in evolvable hardware. (See NASA proposal under new proposal section this TAB).

- Donation of Xilinx FPGA boards

  Award: $21,000   (equipment grant of 12 FPGA boards)
  Date: 3/01
  Co-investigator: None

  Equipment used in support of ECE 171, ECE 271, and ECE 351. One board is also to be used in the above mentioned evolvable hardware research project.

- Determining Side-Chain Conformations in Proteins Using Evolution Strategies, funded by National Science Foundation under the NSF Scholar-in-Residence Program at NIH

  Award: $111,000   Date: 6/99 - 8/00
  Co-investigator: None

  Scheduled visitation periods 1999 and 2000 at the Laboratory of Molecular Biology, National Cancer Institute, National Institutes of Health.

- Design of Effective Search Operators, funded by U.S. Army Research Office

  Award: $19,659   Date: 9/99 - 12/99
  Co-investigators: Dr. X. Hu (University of Notre Dame)
                      Ms. S. Ravichandran (Western Michigan University)

- Architectural Design for Embedded Systems, funded by DARPA

  Award: $167,000   Date: 7/97 - 6/99
  Co-investigator: Dr. X. Hu (University of Notre Dame)

- Hardware/Software Codesign, funded by Hewlett-Packard Corp.

  Award: $203,850 (cash) + $74,673 (equipment)   Date: 5/94 - 4/97
  Co-investigator: Dr. X. Hu (University of Notre Dame)

- Honorarium (Best Paper at International Conference of High Performance Computing)

  Award: $700   Date: 12/96
  Co-investigators: Dr. A. Gupta & Dr. E. DeDoncker (West. Mich. Univ.)

- Speech Recognition and Lip-Image Display Device, funded by Michigan State Dept. of Commerce
  Award: $44,000   Date: 9/94 - 8/95
  Co-investigators: None

II. Proposals in Progress

The proposals listed below are to be submitted during Fall 2001/Winter 2002 quarters. Work on all of these proposals has begun. The requested amounts are approximations because detailed budgets have not yet been developed; the actual requested funds should not deviate by more than a few percent.

1. *Using Preferences to Conduct Pareto Optimal Searches for System-on-a-Chip Floorplans*

   Sponsor: National Science Foundation
   Requested Amount: $200,000   Submission Date: 05 Nov 2001
   Co-investigator: Dr. Malgorzata Chrzanowska-Jeske   (ECE Dept.)

2. *Evolving Test Patterns to Characterize Power Dissipation in IP Cores*

   Sponsor: National Science Foundation
   Requested Amount: $200,000   Submission Date: 01 Dec 2001
   Co-investigator: Dr. Xiaoyu Song   (ECE Dept.)

3. *Using Evolutionary Algorithms to Predict Species Extinction in Ecosystems*

   Sponsor: National Science Foundation
   Requested Amount: $70,000   Submission Date: 11 Nov 2001
   Co-investigator: Dr. Gary Fogel (Natural Selection Inc.)

4. *Characterizing Genetic Algorithms for Configuring Real-Time Adaptive Systems*

   Sponsor: NASA (Jet Propulsion Laboratory)
   Requested Amount: $14,300   Submission Date: 01 Oct 2001
   Co-investigator: None

5. *Real-Time Adaption of Field Programmable Transistor Arrays*

   Sponsor: American Society of Engineering Education[‡]
   Requested Amount: $13,000   Submission Date: 02 Feb 2002
   Co-investigator: None

   [‡] Funds work during Summer 2002 at Jet Propulsion Laboratories, Pasadena, CA

6. *Using Data Envelopment Analysis in Conjunction with Evolutionary Algorithms to Solve Multiobjective Optimization Problems*

   Sponsor: Air Force Office of Scientific Research
   Requested Amount: $140,000   Submission Date: 10 Dec 2001
   Co-investigator: Dr. Timothy Anderson (ETM Dept.)