

# Research Focus Areas

## Computer Science Division

January 30, 2004

The research areas of Biological computing and Bioinformatics have been identified as strategically important for the Computer Science Division of the University of Memphis. National and international recognition of our research have already been achieved in five of its sub-areas (marked \* below). Our research in biological computing and Bioinformatics can be expected to meld in important ways with the current emphasis on commercial development of biotechnology in the community. The research interests of our faculty members often overlap with one another as noted in braces below. Faculty also participate in other research in interdisciplinary areas of importance to the University and community (like e-commerce.)

### Core Enabling Technologies

#### Database and Data Mining

Lin, K.I.; Associate Professor (data mining)

#### Networks and Security

Dasgupta, D.: Associate Professor (self-adaptive, survivable computing systems)

Xiao, Y.: Assistant Professor (wireless networks)

#### Software Development

Shiva, S.; Professor (Hardware/Software Codesign; process improvement)

Sherrell, L.: Visiting Associate Professor (Methodologies)

#### Soft Computing

Dasgupta, Franklin, Garzon, Kozma, McCauley, Shiva, Zhu (Artificial Intelligence, neural networks, evolutionary computation, biomolecular computing)

#### \*Human-Computer Interaction

Garzon, Graesser

### Major Area of Focus—Biological Computing and Bioinformatics

#### Bioinformatics

George, E.O. ;Professor (Statistical Modeling, Bayesian and Neural Network )

Deng, L.Y.; Professor (Statistical Computing)

Lin, K.L.; Associate Professor (Data Mining)

Kozma, R.; Associate Professor (Neural Modeling)

Garzon, M.; Professor ( DNA Computing)

Phan, V.; Assistant Professor (Bioinformatic Algorithms)

#### \*Bio-Molecular Computing

Garzon, M.; Professor (DNA computing) {Deng, Phan}

#### \*Computational Neurodynamics

Kozma, R.; Associate Professor (neural modeling) {Franklin}

Zhu, J. Assistant Professor (neural network pattern recognition)

#### \*Computer Security

Dasgupta, D; Associate Professor (immune system modeling)

#### \*Intelligent Systems

Franklin, S.P.; Professor (cognitive modeling, "conscious" software agents) {McCauley, Shiva}

McCauley, T.L: Assistant Professor (ubiquitous computing)

Graesser, A.: Professor [Psychology] (intelligent tutoring systems) { Franklin, McCauley, Lin}