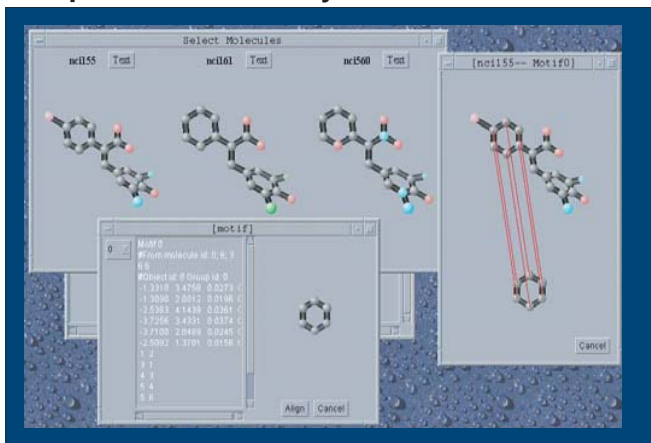


Data Mining in 3D Structures

Adusamilli, D., Kuang, K., & X. Wang
CS Dept., California State Univ., Fullerton

Description: 3D structures can be used to describe data in different domains. In biology and chemistry, for example, a molecule is represented as a 3D structure with connections. This project demonstrates similarity search and pattern discovery in 3D structures.



Applications

- Motif discovery in proteins and chemical compounds
- Clustering chemical compounds
- Classifying proteins
- Similarity search on whole molecules

Focus

Frameworks for 3D structure storage, Efficient and Effective Algorithms for retrieval, Similarity measures and pattern discovery, GUIs for specialized data access, retrieval, search, and discovery

Proposed Courses

- Database Systems
- Pattern Discovery and Data Mining
- Java Programming
- Neural Networks
- Bioinformatics Computing

Faculty Members

S. Barua, N. Chen, J. Choi, B. Cong, S. Courellis, D. Falconer, A. Holliday, F. Holliday, D. Huizinga, C. Jo, D. Kastner, B. Laguna, D. Michalopoulos, M. Molodowitch, T. Ryu, X. Wang

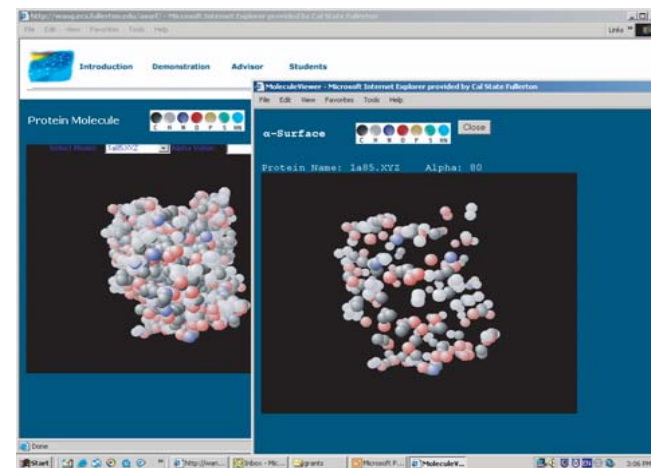
Collaborating Groups

- Computer Security and Forensics
- Embedded, Wireless, & Mobile Computing
- Multimedia, Computer Games, & Digital Animation
- Software Engineering
- Web & Internet Technologies

Data Mining on Protein Surfaces

Chan, T., Chang, K., and X. Wang
CS Dept., California State Univ., Fullerton

Description: Protein surfaces play an important role in protein-protein interactions and ligand-protein binding. a-surface is a notion that defines the surface of a protein in various details.



This project demonstrates a-surface and its applications

Applications

- Active site discovery
- Protein classification
- Protein docking