

**Minitrack on Data and Knowledge Base Issues in Genomics
at the 27th Hawaii International Conference on System Sciences**

For two years in a row, Genome Informatics Minitrack was included in the Biotechnology Computing Track for the HICSS-27, which was held January 4-7, 1994, at the Maui InterContinental Resort in Maui, Hawaii. Over 70 biologists, computational biologists and computer scientists attended the meeting for one and one-half day. Participants came from the US, Japan, France, and Switzerland.

The minitrack was organized by Dong-Guk Shin (University of Connecticut) and Francois Rechenmann (INRIA, France). Support was jointly provided by NSF, NIH and DOE. The minitrack included, after rigorous review, ten full papers and four extended abstracts in the following five different research subareas of genome informatics.

Data Modeling and Management: modeling biological data and querying; requirements for a high level database tool; a unified way of modeling heterogeneous genomic databases using the Entity-Relationship data model; and the adaptability of an interactive query system.

Sequence Analysis: a tree data structure and its associated operations that reduce the cost of sequence comparison; the approximate string search problem with an external search structure; and a method of automating similarity search of expressed sequence tags.

Graphical User Interface: visualizing density and sequence maps; cross-referencing between GDB and GenBank sequence and map links; querying by form-based windows; visual alignment between genetic and sequence maps; supporting high degree of interface portability; and graphically superimposing GDB's locus data on corresponding information from a mouse chromosome.

Interoperation in a Heterogeneous Computing Environment: a way of making interoperation feasible between two heterogeneous genome databases by using ASN.1 as the common data exchange language; and a strategy that promotes open-system architecture and a distributed computing environment for the biology community.

System Integration in a Knowledge-Based Approach: a method of modeling analysis tasks into knowledge-based objects; a software tool designed to automate pre- and post-BLAST search activities using rules elicited from human experts; and a deductive object-oriented language to streamline data retrieval activities.

In addition to the formal paper presentation, activity reports were presented from two genome centers, Human Genome Mapping Center (Sidney Cowles), Stanford University and Drosophila Genome Center (Suzanna Lewis), UC Berkeley. The minitrack also included informal round table discussion sessions, moderated by Dong-Guk Shin. The discussion leaders were Mary Berlyn, Nathan Goodman, Dick Douthart, and Manfred Zorn. The hot topics discussed in the open forum included standardization for genome database interoperability, relational vs object-oriented modeling of genome data, and use of Mosaic and WWW for data integration across databases.

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Dissemination of Printed Material

In an effort to disseminate the published work to a wider community, the PI, Dong-Guk Shin, announced the outcome of the meeting in Human Genome News Vol. 6, No. 1, May 1994. In the announcement interested scientists were invited to contact the PI via email to request a free copy of the Genome Informatics minitrack portion of the Proceedings. The PI had to reproduced overall 100 copies in three different time frames. All of them were sent out. As late as March of 1995 an interested party was contacting the PI for a copy.

List of Travel Grant Awardees¹

Students:

Paul Bieganski, University of Minnesota
In Kuan Cheang, University of Missouri-Kansas City
Young Bae Choi, University of Missouri-Kansas City
Stamatis Dimidis, University of Florida
Rohit Gupta, University of Connecticut
Elizabeth Shoop, University of Minnesota
Jinghui Zhang, National Center for Biotechnology Information

Postdocs:

Mark Surles, San Diego Supercomputer Center

Scientists:

Mary Berlyn, Yale University
Sidney Cowles, Stanford University
Jean Garnier, NIH
Nathan Goodman, MIT
Stan Letovsky, Letovsky Associate
Suzanna Lewis, UC Berkeley
Dong-Guk Shin, University of Connecticut
Gorden Springer, University of Missouri-Columbia
Manfred Zorn, Lawrence Berkeley Laboratory

¹This list shows awardees whose support was jointly provided by DOE, NIH, and NSF.