UCI RECEIVES $7 MILLION TO ADVANCE BIOMEDICAL RESEARCH THROUGH COMPUTER SCIENCE

Four Grants to the Institute for Genomics and Bioinformatics Will Support Plant Cellular Research, Genome Sequencing and K-12 Education

Irvine, Calif., Nov. 20, 2003 — UC Irvine’s Institute for Genomics and Bioinformatics has been awarded four grants totaling nearly $7 million to further biomedical computing research and improve educational training.

The grants include a five-year, $4.9 million award from the Frontiers in Integrative Biological Research (FIBR) — a new National Science Foundation (NSF) program supporting biological research and outreach that crosses academic disciplines. Along with supporting key research at the university, the grants are regarded as an indicator of the rising profile of UCI’s interdisciplinary studies in biology and computer science.

“The support from the National Science Foundation reflects the growing visibility of UCI’s Institute for Genomics and Bioinformatics,” said William H. Parker, vice chancellor for research, who oversees UCI’s research institutes. “Receiving support from the new FIBR program is particularly rewarding and appropriate given the university’s well-established multi-disciplinary approach to research and education.”

Pierre Baldi, director of the Institute for Genomics and Bioinformatics, concurred. “Since its creation, the institute’s mission has been to foster innovative research and educational programs that apply computer science to health science research and applications,” he said. “FIBR’s support isn’t just welcome, given our common mission, it is also appropriate.”

The $4.9 million FIBR grant was awarded to Eric Mjolsness, associate professor in the School of Information and Computer Science (ICS). Working with plant developmental biologist Elliot Meyerowitz at the California Institute of Technology, Mjolsness will provide a quantitative and cellular description of plant development using contemporary plant biology research combined with extensive visualization, image processing and optimization software.

“This is important because it will allow us to create detailed computer simulations that help us understand how tens of thousands of different genes and proteins coordinate their activities in living cells and multicellular tissues,” Mjolsness said.

The FIBR grant will also support outreach programs designed to introduce K-12 teachers and students to new techniques for understanding biology, culminating in a summer institute at UCI.

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“We are thrilled that the grant will support K-12 outreach efforts,” said Debra J. Richardson, interim ICS dean. “Along with demonstrating how computer science applies to biology and the health sciences, we hope this will encourage more students to further their studies in computing and information technology.”

The other grants will support the following research:

- Richard Lathrop, ICS professor, and Wesley Hatfield, professor of microbiology and molecular genetics, received a four-year $1.5 million grant from NSF to advance the use of computational methods that can aid the understanding of complex genomic DNA sequences. “Human limitations in unraveling complex strings of DNA and its RNA and protein products can be overcome by using computers to distribute the computational burden,” Lathrop said. “Preliminary results already have allowed us to design and build gene structures for *E. coli* and smallpox.”

- Baldi received a research infrastructure grant of more than $385,000 from the NSF for computer equipment to support interdisciplinary research and training efforts at the intersection of chemistry, biology and computer science. This grant is in addition to a $4.3 million multiyear training grant awarded to Baldi from the National Institutes of Health (NIH) in May 2002 to consolidate current UCI bioinformatics training programs into a comprehensive, campus-wide initiative.

- Mjolsness received $150,000 in first-year funding from the NIH to develop a computable, predictive scientific understanding of cell signaling — a network of controls that regulate the physiology of cells. An additional $2.19 million will be made available pending the outcome of Mjolsness’ current research efforts.

THE INSTITUTE FOR GENOMICS AND BIOINFORMATICS: Founded in 2001, the institute is dedicated to promoting innovation at the intersection of the life and computational sciences. This includes the creation of electronic databases and computer modeling of biological systems such as genomes and protein sequences. To learn more about the institute, please visit: www.igb.uci.edu.

THE SCHOOL OF INFORMATION AND COMPUTER SCIENCE: Founded as a department in 1968, information and computer science became a school in December 2002. It is home to the largest computing program in the University of California system and leads innovative research into new information and computing technology, including studies of its economic, commercial and social impact. For more information, visit www.ics.uci.edu.

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