GuestEditorial

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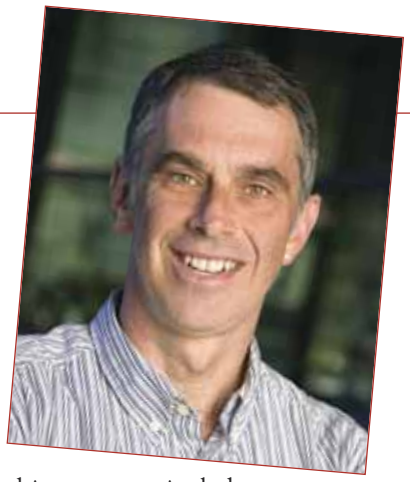

The NCBC Centers: Incubators for the Next Generation of Science and Scientists

In this issue of *Biomedical Computation Review*, we feature a look at the NIH Roadmap National Centers for Biomedical Computing (NCBC) program. The NCBC program was a response to the recommendations of a pivotal report[1] entitled Biomedical Information Science and Technology Initiative (BISTI). In that report, the authors recognized the need for NIH to support the creation of "an intellectual fusion of biomedicine and information technology" and support "ways to discover, encourage, train and support the new kinds of scientists needed for tomorrow's science. In their prescient report, they called for four interventions:

1 To establish between 5 and 25 National Programs of Excellence devoted to all facets of this emerging discipline, who will play a major role in educating biomedical-computation researchers.

2 To make the growing body of biological data available for study and use.

3 To provide resources for basic research in computational methods.

4 To foster a scalable national computer infrastructure to support biomedical research.

The many payoffs from the NCBC program are described in the cover story of this magazine. But I think that the program's most important legacy is its impact on human capital. Each NCBC center has created an intellectual home where a new generation of biomedical computational scientists has been created and nurtured. The centers have created a heretofore absent ecosystem that allows scientists skilled in informatics and computation to thrive. The web of people in this ecosystem includes:

- Faculty leaders striving for methodological innovation to solve big problems in biomedical science;
- Graduate students in interdisciplinary programs interacting with other students who share their passion for computation, biology or both;
- Post-doctoral fellows working in rich intellectual environments and defining the new questions and new methodological directions that will drive the field in the next 10 years;

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- Professional software engineers who've found a career path in biomedicine that offers rewards not available in more traditional areas such as finance, entertainment, social networking, and defense;
- Scientific staff who are training biologists and physicians to use powerful new software tools, and who have learned how to disseminate the fruits of their centers effectively and globally.

And, perhaps most significantly:

- NIH Program and Scientific officers who have helped lead the NCBC program and begun to learn the special features of this field—the ways in which it is similar to the other science at NIH, and the ways in which it requires special consideration because of its special technical content, its focus on methodological innovation, and its tendency to engineer artifacts (software, databases, novel hardware architectures) that require ongoing support. A well-informed and experienced set of research administrators is absolutely critical for the success of this endeavor.

As NIH leadership ponders the end of the first 10 years of the NCBC program, and considers how to evolve the NIH mission in biomedical computation, one priority must be the continued nurturing of an intellectual ecosystem for the field. It is this ecosystem that will ensure the success of biomedical research in the digital era. □

1 http://www.bisti.nih.gov/library/june_1999_Rpt.asp