

of the infrastructure and NUBIOS services include, among others, Animal Health Institute, Agriculture Genetic Engineering Institute, and National Cancer Institute in Egypt as well as researchers in the Medical School at Imperial College London in the UK.

The group is currently engaged in a number of research projects. Over the past eighteen months, a major focus has been on building a cancer bioinformatics facility for the management, integration, and interpretation of Bladder and Ovarian Cancer data. This effort is conducted in collaboration with the Department of Oncology, Imperial College London, the Egyptian National Cancer Institute, and InforSense Ltd. Other projects for the application of advanced data management and analysis methods to pathogen detection and virus research are in preparation with partners from Europe, USA and Australia.

The group has well established research collaborations with international software companies. In 2008, it successfully completed a pilot project with Microsoft for building bioinformatics tools running on Microsoft Windows Cluster and released WinBioinfTools, an open source package for sequence analysis running under Windows HPC Server 2008. The group is also collaborating with IBM for developing tools designed to run on massively parallel architectures and the IBM Blue Gene technology.

Developing a strong base of competent bioinformaticians in Egypt and the region is a self-commitment of the group. Its efforts in this area include a dedicated bioinformatics stream in the Nile University Masters program and regular engagements in a number of regional and international activities. For example, the head of the group, Abouelhoda, is currently mentoring the ISCB Regional Student Group of North Africa.

The bioinformatics group is optimistic that EMBnet membership will help it in achieving its goals. Through EMBnet, wider international and regional collaboration is guaranteed and wider dissemination of the group work will be accelerated. Nile University will act as a dissemination node for all research and educational information of EMBnet to the Egyptian and regional community by means of its local and regional connections and by means of NUBIOS, which will host a local mirror of the EMBnet site.

The New South Wales Systems Biology Initiative



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The New South Wales Systems Biology Initiative (SBI) was established in 2008, funded by the New South Wales Office for Science and Medical Research (OSMR) and the University of New South Wales (UNSW). The mission of SBI is to become Australia's foremost centre for Systems Biology, undertaking basic and applied research in the development and application of bioinformatics for genomics and proteomics, and providing collaborative bioinformatics services in these areas.

The SBI is based in the school of Biotechnology and Biomolecular Sciences at the University of

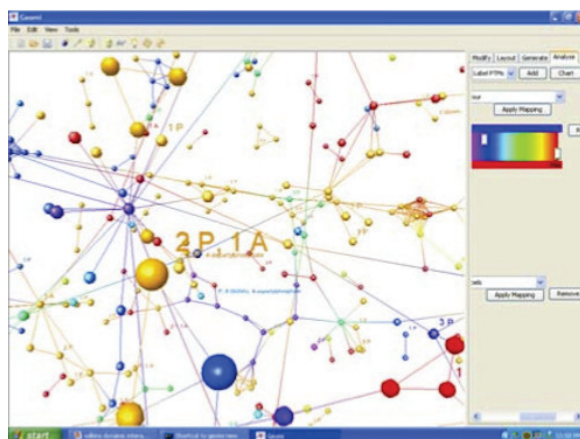


Figure 1. Screenshot of GEOMI, a network visualisation tool developed by Dr. Seokhee Hong (National ICT Australia). This version of GEOMI has been specifically tailored by the SBI to allow co-visualisation of protein-protein interaction networks or complexome networks with multiple protein parameters (e.g. abundance, half-life, function, localization) or gene expression data.



Figure 2. Screenshot of the Interactorium, a program developed by the SBI for visualisation of interaction networks. The Interactorium is based on Skyrails, a platform for 3D visualisation of complex networks developed by Yosef Widjaja and Tim Lambert (school of computer science and engineering, UNSW). This screenshot shows the yeast Pure complex (a mitochondrial protein complex).

New South Wales in Sydney, Australia. The initiative is closely associated with the nearby Ramaciotti Centre for Gene Function Analysis, which provides microarray and sequencing services in New South Wales, and the Biomolecular Mass Spectroscopy Analysis. The SBI is also a member of Bioplatforms Australia, the national consortium of “omics”-related facilities.

The director of the SBI is Professor Marc Wilkins, who holds the chair of Systems Biology at UNSW. The centre currently employs one post-doctoral fellow and two bioinformatics research scientists, in addition to a number of postgraduate students and affiliated researchers in several departments of UNSW and in other universities.

The SBI provides collaborative bioinformatics services and expertise to users of genomic and proteomics facilities in Australia, in the context of the National Collaborative Research Infrastructure Scheme (NCRIS). The SBI has strong expertise in the areas of experimental design and infrastructure for genomics, transcriptomics and proteomics, and in integrative and network biology, particularly with regard to visualisation and analysis of biomolecular interaction networks. These services are provided free of charge to non-profit research organisations in the state of New South Wales. An ongoing project is the application of GEOMI, a platform for network visualisation, to the analysis of protein interaction networks in vari-

ous contexts including gene expression, disease and post-translational modifications.

The SBI is also collaborating with Intersect Pty Ltd, a not-for-profit e-research support organisation, to implement computational infrastructure for the management, storage and processing of next generation sequencing data which will be made available to users in NSW.

Education and training are part of the mission of the SBI, and the centre has already run a number of workshops and symposia since its foundation, including a workshop on the future of bioinformatics featuring Dr. Ewan Birney from EBI, an advanced proteomics data analysis workshop, and a symposium on next generation sequencing applications held jointly with Sydney Bioinformatics. UNSW offers an undergraduate Bachelor of Engineering in Bioinformatics program (the largest bioinformatics undergraduate program in Australia) that several staff and affiliates of the centre contribute to. The director of the program, Bruno Gaëta, is affiliated with the SBI, and the centre has hosted a number of students for their final year research thesis project.

Information about the NSW Systems Biology Initiative can be accessed on its website at <http://www.systemsbio.org.au/>, together with reports, publication lists and software developed by the centre.