

Pakistan EMBnet node: progress report



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COMSATS Institute of Information Technology (CIIT), Department of Biosciences in Islamabad is the EMBnet Pakistan National Node. The node started in 2006. Following is a brief report of our activities and future goals.

In 2006, little was known about bioinformatics in Pakistan and there were very few resources available for bioinformatics education and training. We addressed this problem by:

- providing regular workshops for CIIT Biosciences faculty;
- reforming existing curricula and developing new bioinformatics curriculum;
- developing online learning resources;
- organizing and participating in workshops, seminars, conferences.

There is a severe shortage of skilled bioinformaticians in Pakistan and most bioinformatics courses are taught by computer scientists and biologists who teach their parts without context to the other. In the absence of bioinformaticians, the best option is to train biologists and computer scientists in bioinformatics. Regular workshops for bioinformatics instructors proved very successful to improve bioinformatics education.

We proposed reforms in existing curriculums and modules of courses which permit existing faculty members to teach bioinformatics concepts and skills. For example, the Genomics course at CIIT Islamabad now covers metagenome annotation using annotathon (<http://annotathon.univ-mrs.fr/>).

We are trying to convince decision makers to increase the number of institutions offering bioinformatics programs since the five Pakistani Universities offering bioinformatics education can educate only a fraction of the students wishing to pursue education in bioinformatics. This year we introduced a Bioinformatics Program in CIIT Sahiwal and MS Bioinformatics in CIIT Islamabad. The MS Bioinformatics program has been created with intent to overcome our severe shortage of qualified bioinformatics instructors, researchers, and developers.

Pakistan and the developing world in general won't be able to satisfy its bioinformatics education requirements in the near future due to shortage of qualified persons. Given this situation, online education is a very attractive option. We launched BIREC (Bioinformatics Information Resource and Elearning Center, <http://www.birec.org>) on January 1, 2009. This resource is becoming quite popular within and outside Pakistan. Comprehensive online bioinformatics courses that would include PowerPoint presentations, videos, exercises, quizzes, and much more are also in the pipeline. Once live, these courses would be a free and easily accessible resource for bioinformatics educators and students worldwide.

Eventually, we would like to offer an online degree program in bioinformatics and we are actively working towards achieving this goal. However, we are still a few years away from realizing this goal. With the installation of PERN-2, we now have the necessary infrastructure to realize this goal. See <http://pern.edu.pk/index.php> for more information on PERN-2.

EMBnet Pakistan National Node lobbied hard and won approval of full scholarships for 50 Pakistani students to pursue PhD Bioinformatics overseas from HEC. See: <http://www.hec.gov.pk/InsideHEC/Divisions/HRD/Scholarships/ForeignScholarships/HECOSBN/Pages/Default.aspx>, for details. Eleven students are currently pursuing PhD in Bioinformatics at Uppsala University in Sweden.

To raise awareness of Bioinformatics and its applications, members of EMBnet Pakistan National Node regularly make oral and poster presentations in scientific events. In addition, we solely or partially organized several bioinformatics events:

- Role of Bioinformatics in Medical Research and Health Services
- Latest Trends in Bioinformatics
- Crash Course in Bioinformatics
- Use of Bioinformatics in Genomics Research
- Bioinformatics: Current Progress and Practical Applications (Baku, Azerbaijan)
- Workshop on Bioinformatics
- COMSTECH-CIIT National Workshop on Bioinformatics for Computer Scientists

Currently we have 2 Xeon Servers, eBioKit running, 2 bioinformatics labs, and direct link to PERN-2. We also provided Jemboss in 2006-2007. We are currently striving to improve and upgrade our computing facilities.

We have contributed 2 articles to EMBnet.news and 2 Quick Guides to EMBnet.org. Our contributions to EMBnet.news and EMBnet in general are expected to increase in future.

11 Bioinformatics undergraduate research projects were completely successfully under the supervision of members of our node.

Our node has come a long way since 2006. Most of the work was concentrated around raising awareness about bioinformatics and training the first generation of bioinformaticians.

Our goals for the next three years are:

- create avenues for utilizing the skilled manpower for scientific research and development;
- turning <http://www.pk.EMBnet.org> into bioinformatics portal as well as node website which would integrate tightly with <http://www.EMBnet.org>;
- setup bioinformatics infrastructure accessible outside the node;
- provide bioinformatics analysis services;
- increase and consolidate our online elearning activities;
- continue seminars and workshops to raise awareness on Bioinformatics and its applications in Life Science.

We are very thankful to EMBnet for their support and guidance since we joined the network in 2006. Without their support and guidance, we would have been much less successful in our effort to introduce and promote Bioinformatics in Pakistan.

Spanish EMBnet node: progress report



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During the last year the Spanish EMBnet node has been active in the Executive Board of EMBnet (see EB report in this issue).

Several EMBnet courses have been organised at CNB in Madrid during the period 2008-2009:

- International EMBnet introductory course on Molecular Dynamics using TINKER (extended and based on contents from Swiss EMBnet node course using CHARMM)
- National EMBnet introductory course on Quantum Biology (training delivered in Spanish)
- Biostatistics (an updated and extended version of previous introductory courses).
- Advanced UNIX (organized as a seminar series every Wednesday for three months).

All courses were organized as hands-on courses with theoretical lectures paired with practical sessions where students could try the tools first hand.

Additionally, the node manager participated in the II Workshop on Bioinformatics organized in Ota University, Canaanland, Nigeria on July. The course made heavy use of the in-development USB key from EMBnet/CNB. The key is now ready for use and we intend to update it periodically (see EMBnet.news vol. 15, nr. 3; pp. 8-11).

EMBnet/CNB has also actively participated on the organization of the Next Generation Sequencing Workshop held in Rome in November.