BIOC

From: Dong Xu [xudong@missouri.edu]
Sent: Wednesday, December 22, 2004 10:45 AM
To: BIOC
Subject: recommendation letter for Xiufeng Wan

Dear Search Committee Members:

This letter is to express my strongest support for Dr. Xiufeng Wan's application for a faculty position in your department.

I am currently serving as his mentor for the postdoctoral training at the Digital Biology Laboratory, Computer Science Department, University of Missouri-Columbia. Since Dr. Wan joined my laboratory last year, he has contributed tremendously to my laboratory and the scientific research in general. Briefly, his achievements in my laboratory can be summarized in five aspects:

1. Dr. Wan has developed Rnall, a novel algorithm for RNA local secondary structure prediction. It is known that the prediction of RNA secondary structure is very computationally expensive. Current available algorithms and tools are either very slow or inaccurate. Rnall allows RNA motif scanning applicable in the genomic scale with high prediction accuracy. Dr. Wan has also applied it to Rho-independent terminator prediction for bacteria. Rnall can be applied also in the other areas, including RNA motif scan in RNA virus genome, RNAi design, and extracting micro RNA molecules in genomes.

2. Dr. Wan has unveiled the sources of the 2003/2004 Asian H5N1 bird flu pandemic. During the recent H5N1 bird flu, about 80 million birds were culled and 22 people died. The understanding of the sources of this pandemic will be a key to the prevention and control of H5N1. Dr. Wan has inferred that this pandemic was associated with the Hong Kong 2000 and 2001 H5N1 virus through phylogenetic analysis.

3. Dr. Wan suggested new biological roles of S-M complex in SARS-CoV. In 2003, 8422 people worldwide were infected by SARS, and more than 700 people died of SARS. SARS-CoV is novel virus and there is little knowledge about this virus. S-M complex plays an important role in the virus assembly and pathogenesis. Understanding their biological role will be very significant to prevention and control of SARS. Dr. Wan explored the functions of S-M complex using the correlated mutation strategy. Through intensive study, Dr. Wan illustrated a systematic function model for the S-M complex.

4. Dr. Wan has also been involved in other projects in my laboratory. He initiated a statistical model for assess the proteomics data analysis. Due

to his contribution, he is a co-author in the related paper.

5. Dr. Wan developed a novel algorithm for codon usage bias measurement. His method, for the first time, allows people to analyze the codon usage bias of genes both within and across genomes. This is very critical for investigation of evolutionary relationship between species. Beyond this, Dr. Wan also applied this method and first quantified the codon usage bias and GC content. This quantitative relationship will help people understand deeply the correlation between codon usage bias and GC content. Because of the significance of the work, Dr. Wan's paper (BMC Evolutionary Biology. BMC Evolutionary Biology 2004, 4:19, 2004) is among the top 10 most cited papers since the inception of the journal.

Dr. Wan is a truly talented and creative individual. While he was trained as a biologist, he also has deep understanding in computer science thanks to his Master degree in computer science and extensive programming experience. He is also a good programmer. He can independently develop sizable code for bioinformatics tools. He has a remarkably good sense in integrating experimental work with computational method and applying computational methods for biological problems. I am often impressed by his solid grasp of the research field and by his ability to recognize new opportunities for breakthroughs or further improvement. I would say Dr. Wan is one of the rare researchers in the field of bioinformatics who have deep understanding in both biology and computer science. His talent and hardworking are also demonstrated in his impressive publication list. In addition, Dr. Wan is a warm, pleasant, and likable person. I find that he is honest, responsible, and always likes to help others. It has be a pleasant and enjoyable experience for me to work with him. Dr. Wan has excellent communication skills and is a good team player. He helped me delivered a number of lectures in my courses, and did an excellent job based on students' feedback. His oral presentation skills are impressive. I am confident that he will deliver high-quality teaching in your department.

Overall, I think Dr. Wan is outstanding in his research and scholarship among researchers in Northern America of similar background and stage in their career. I see even bigger potential for him down the road of his career path. I strongly recommend Dr. Wan for an Assistant Professor position in your Department. I encourage you to contact me for any further information you might find helpful.

Sincerely,

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