Networking and Collaboration

There are many conferences and symposia in my research field every year, providing ample opportunity for collaboration and networking. The Society for Applied and Industrial Mathematics (SIAM), of which I am a member, holds many academic events every year, some in association with the Association for Computing Machinery. Attending and presenting at such a venue would benefit me greatly. The Pacific Institute for Mathematical Sciences (PIMS) and its activities provide many networking and collaboration opportunities. PIMS regularly runs seminars, minischools, conferences, workshops, and many other events. The Banff International Research Station, easily reachable from Edmonton, often hosts PIMS workshops.

The University of Alberta hosts many prominent computer scientists as visiting speakers. In the past year, I have met both Dr. Vasek Chvatal and Dr. Andrew Chi-Chih Yao. Both of these visitors are on the editorial boards of leading journals in my field. Dr. Chvatal is a Canada Research Chair in Combinatorial Optimization. Among many other awards, Dr. Yao received a A.M. Turing award from the ACM in 2000, considered by many to be the most prestigious award in computing science. Both of these researchers have made major contributions to theoretical computing. It was a major opportunity for me to meet and discuss research with both of these researchers. During Ph.D. work, there are likely to be many more such opportunities to meet visiting leading researchers.

I have collaborated with researchers at the Queen's University Molecular Ecology Laboratory (QUMEL) in Kingston, Ontario. Theoretical arguments can be made about a number of ecological problems. One such argument has developed into a paper, and has been submitted to the Canadian Student Conference on Biocomputing. I fully intend to continue contact with QUMEL.

In addition to the networking and collaboration possibilities with outside researchers, there is a strong complement of professors in theoretical computing here at the University of Alberta. Our Algorithmics Group consists of nine professors, their students, and occasional visiting researchers. Of these professors, Dr. M.R. Salavatipour, Dr. R. Hayward, and Dr. Stewart work primarily in graph theory, with several of the others doing closely related work. There are many opportunities for collaboration here, both with professors and their students. Outside of the algorithmics group, I have worked with Dr. G. Kondrak in the field of natural language processing (NLP). This field is a major consumer of graph theoretic results. I hope to collaborate with him again, should applications of my research to NLP develop.

Mentoring and Coaching

My proposed supervisor, Dr. Lorna Stewart, would be my primary mentor. Her expertise is in algorithmic graph theory. I would meet weekly with her to discuss research, and my progress through my Ph.D. work. Dr. Hayward also works in algorithmic graph theory. I would also consider him a mentor - he has assisted me in considering a number of interesting problems, as well as providing incredibly helpful insights into academic life, and is likely to continue doing so. Dr. J. Culberson is an expert in complexity classes, an area closely related to my work. He will be of help in this area.

Facilities

As a theoretical computer scientist, I have fairly light requirements in terms of technical equipment or laboratory facilities. I require the use of electronic and physical library resources, again these are available here. The University of Alberta holds both electronic and paper subscriptions to most important journals in my field.

Should my work yield cross-field, or cross-disciplinary applications, the facilities available at the University of Alberta are world-class. With the usefulness of related graph classes, and the tree-overlapping nature of my proposed work, it is certainly possible that my work will yield applications in biology or natural language processing. Should I need computation-time for my research, the Western Canada Research Grid could prove invaluable.