

## Skills

### Programming:

- Familiar with cross-platform (Windows and Linux) software developing.
- Familiar with design of Genetic Algorithms.
- Familiar with Java, C and Fortran.
- Familiar with Eclipse and Delphi.
- Experience with parallel programming by using MPI.
- Experience with Microsoft SQL Server, Visual Studio, Netbeans, Oracle 10g and MySQL.

### Bioinformatics Research:

- Large scale network analysis.
- Cytoscape plugin development using Java ([www.ictnet.org](http://www.ictnet.org)).
- Data mining approaches for human disease network.
- Genetic Algorithms for the non-unique probe selection problem.

## Work Experience

Sep. - Dec. 2012

### Visiting Student

University Health Network, Ontario Cancer Institute

- Data analysis for ovarian cancer research

Feb. - May 2012

### Visiting Student

Department of Neurology, University of California, San Francisco

- Database design (MySQL)
- Cytoscape plugin development (Java).

Sep. 2008 - present

### Research Assistant in Bioinformatics

School of Computing, Queen's University, Canada

- Computational approaches for genome-wide association studies.
- Cytoscape plugin development (Java).

July - Sep. 2009

### Visiting Student

Department of Neurology, University of California, San Francisco

- Human disease network database.
- Computational analysis for human disease network.
- Cytoscape plugin development (Java).

May – Aug. 2008

### Engine Research and Development Assistant

Center of Innovation, *Navistar Canada*

- High Performance Computing Experiment Design

(Fortran, MPI, Python).

### Research Fellow

Sep. 2007 – Apr. 2008

Department of Mechanical, Automotive & Materials Engineering, University of Windsor, Canada

- Graphic user interface design for KIVA-3 using Java.
- Implement the interactive block decomposition for K3PREP.

### Research Assistant

May 2007 – Dec. 2007

School of Computer Science, University of Windsor, Canada

- Developed novel heuristics and genetic algorithms for non-unique probe selection problem (C).

## Teaching Assistantship Experience

2009-2012 School of Computing, Queen's University, Canada  
Course(s):

- *System-level Programming*
- *Algorithms*
- *Artificial Intelligence*

2006-2008 School of Computer Science, University of Windsor, Canada  
Course(s):

- *Key Concepts in Computer Science,*
- *Computer Architecture II: Micro. Program,*
- *Theory of Computation,*
- *Data Structure & Algorithms*

## Education

2008 – present **Ph.D.** (Computer Science), School of Computing, Queen's University, Canada  
*Supervisor* Dr. Parvin Mousavi  
*Research Focus* *Network analysis of human complex traits; Knowledge discovery of biological data; Biological networks.*

2006 - 2008 **M.Sc.** (Computer Science), School of Computer Science, University of Windsor, Canada  
*Supervisor* Dr. Alioune Ngom  
*Research Focus* *Computing optimization; Algorithms for non-unique probe selection;*

1998 - 2002 **B.Sc.** (Computer Science), Dept. of Computer Science, Academy of Armored Forces Engineering, Beijing, China

## Publication

**Lili Wang**, Pouya Khankhanian, Sergio E. Baranzini and Parvin Mousavi. 2011. iCTNet: A cytoscape plugin to produce and analyze integrative complex traits networks. *BMC Bioinformatics* 12:380, DOI:10.1186/1471-2105-12-380.

Laleh S. Ghoraie, Robin Gras, **Lili Wang** and Alioune Ngom. 2010. Optimal decoding and minimal length for the non-unique oligonucleotide probe selection problem. *Neurocomputing* 73(13-15): 2407-2418, DOI: <http://dx.doi.org/10.1016/j.neucom.2010.02.026>.

Alioune Ngom, Luis Rueda, **Lili Wang** and Robin Gras. 2010. Selection based heuristics for the non-unique oligonucleotide probe selection problem in microarray design, *Pattern Recognition Letters* 31, 14, 2113-2125.

**Lili Wang**, Alioune Ngom and Luis Rueda. 2008. Sequential Forward Selection Approach to the Non-Unique Oligonucleotide Probe Selection Problem, PATTERN RECOGNITION IN BIOINFORMATICS, Lecture Notes in Computer Science, Vol. 5265/2008, 262-275, DOI:10.1007/978-3-540-88436-1\_23.

**Lili Wang**, Alioune Ngom, Luis Rueda and Robin Gras. 2008. An Evolutionary Approach to the Non-Unique Oligonucleotide Probe Selection Problem, TRANSACTIONS ON COMPUTATIONAL SYSTEMS BIOLOGY X, Lecture Notes in Computer Science, Vol. 5410/2008, 143-162, DOI: 10.1007/978-3-540-92273-5\_8.

**Lili Wang**, Alioune Ngom, Robin Gras and Luis Rueda. 2008. Evolution Strategy with Greedy Probe Selection Heuristics for the Non-Unique Oligonucleotide Probe Selection Problem, *Proc. 2008 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB 2008)*, September 15-17, Sun Valley, Idaho, USA.

**(Overall Best Paper Award)**

**Lili Wang**, Alioune Ngom and Robin Gras. 2008. Non-Unique Oligonucleotide Microarray Probe Selection Method Based on Genetic Algorithms, *Proc. 2008 IEEE Congress on Evolutionary Computation*, June 1-6, Hong Kong, China.

**Lili Wang** and Alioune Ngom. 2007. A Model-Based Approach to the Non-Unique Oligonucleotide Probe Selection Problem, *Proc. Second International Conference on Bio-Inspired Models of Network, Information, and Computing Systems (Bionetics 2007)*, December 10-13, Budapest, Hungary.

## Conference Attended

**CASCON 2012**: IBM Canada Lab CAS Research, November 5-7, 2012, Toronto, ON, Canada

**ONCWIC2012**: Ontario Celebration of Women in Computing, October 12-13, 2012, London, ON, Canada.

**CASCON 2011**: IBM Canada Lab CAS Research, November 7-10, 2011, Toronto, ON, Canada

**ISMB2010**: 18<sup>th</sup> Annual International Conference on Intelligent Systems for Molecular Biology, July 9-13, 2010, Boston, MA, USA.

An official conference of the international society for computational biology.

**QGCSC2010**: 1st Annual Queen's Graduate Computing Society Conference, May 30, 2010

Kingston, ON, Canada.

## Student Membership

2010-2011 **ISCB**: International Society for Computational Biology  
*The leading professional society for the new era of computational biology.*

2008-2009 **IEEE**: Institute of Electrical and Electronics Engineers  
*The world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity.*

## Volunteer Experience

2011 Volunteer usher for the Fall Convocation Ceremony  
Queen's University, Kingston, ON, Canada

## Award

2012-2013	Ontario Graduate Scholarship (OGS)
2011-2012	Ontario Graduate Scholarship (OGS)
2008-2012	Queen's Graduate Award (Queen's University)
2008-2010	Queen's International Tuition Award (Queen's University)
2008	Overall Best Paper Award from IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology, Sun Valley, Idaho, USA
2007-2008	In-Program Scholarship (University of Windsor, Master's-International)
2002	Beijing Municipal Excellent Graduate Award (Beijing Municipal Commission of Education, P.R. China)
2002	University Excellent League Leader Award (Academy of Armored Forces Engineering, Beijing, P.R. China)
2001	University Award for Excellent Students-Runner-up (Academy of Armored Forces Engineering, Beijing, P.R. China)