Yue Li

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Education:

12/2014	Ph.D.	*Computational biology*	Department of Computer Science University of Toronto
	Thesis title: *Computational Methods of Inferring Context-specific MicroRNA Regulatory Networks*		
04/2012	M.Sc.	*Computational biology*	Department of Computer Science University of Toronto
06/2010	B.Sc.	Honors: *Bioinformatics* Minors: *Statistics* GPA: 92%	Department of Computer Science Department of Math. & Stat. University of Saskatchewan

Research Background:

Computational methods: Generalized linear models, Parametric and nonparametric testing, Probabilistic graphical models, Bayesian inference.

Programming skills: R (developed and contributed four packages to Bioconductor), Matlab, Shell, Perl, Awk, C, Java.

Data analysis: Microarray, tiling array analysis;
Next generation sequencing analysis including RNA-seq, ChIP-seq, RIP-seq, CLIP-seq, PAR-CLIP, etc.

Biological problems of interest: Post-transcriptional regulation by microRNAs;
RNA epigenetics (N^6-methyladenosine or m6A target site predictions);
Function characterization of long noncoding RNAs;
DNA epigenetics in non-Mendelian complex diseases such as cancer;
Transcriptional regulation by transcription factors;
Epigenetic regulation by chromatin regulators and histone modifications.

Refereed Publications:

Li, Y., Zhang, Z. (**Nov, 2014**). Potential microRNA-mediated oncogenic intercellular communication revealed by pan-cancer analysis. *Scientific Reports*. **7**(7097).

Li, Y., Liang, M., Zhang, Z. (**Oct, 2014**). Regression analysis of combined gene expression regu-

lation in acute myeloid leukemia. *PloS Computational Biology*. **10**(10): e1003908.

Li, Y.*, Liang, C.*, Easterbrook, S., Luo, J., Zhang Z. (**Sep, 2014**). Investigating functional implication of reinforcing feedback loops in transcriptional regulatory network. *Molecular BioSystem* **10**(12), 3238–3248.

Wong, KC, **Li, Y.**, Peng, C., Zhaolei Z. (**Sep, 2014**). SignalSpider: Probabilistic Pattern Discovery on Multiple Normalized ChIP-Seq Signal Profiles. *Bioinformatics*. doi:10.1093/bioinformatics/btu604 (Online Advance)

Li, Y.*, Liang, C.*, Wong, KC., Luo, J., Zhang Z. (**May, 2014**). Mirsynergy: detecting synergistic miRNA regulatory modules by overlapping neighbourhood expansion. *Bioinformatics* **30**(18), 2627–2635.

Wong, KC., Peng, C., **Li, Y.**, Chan, TM. (**May, 2014**). Herd Clustering: A synergistic approach using collective intelligence. Applied Soft Computing (Accepted)

Li, Y., Liang, C., Wong, KC, Jin, K., and Zhang, Z. (**Feb, 2014**) Inferring probabilistic miRNA-mRNA interaction signatures in cancers: a role-switch approach. *Nucleic Acids Research*, **42**(9), e76. doi: 10.1093/nar/gku182

Wang, Y., **Li, Y.**, Toth, JI., Petroski, MD., Zhang, Z., and Zhao J. (**Jan, 2014**). N^6-methyladenosine modification destabilizes developmental regulators in embryonic stem cells. *Nature Cell Biology*, **16**(2), 1-10. *doi*:10.1038/ncb2902

Li, Y., Goldenberg, A., Wong, KC., Zhang Z. (**Oct, 2013**). A probabilistic approach to explore human miRNA targetome by integrating miRNA-overexpression data and sequence information. *Bioinformatics*. (Oxford, England), **30**(5), 621–628. *doi*:10.1093/bioinformatics/btt599 doi:10.1093/bioinformatics/btt599

Wong, KC., Chan, TM., Peng, C., **Li, Y.**, and Zhang, Z. (**May, 2013**). DNA motif elucidation using belief propagation. *Nucleic Acids Research*, **41**(16), e153. *doi*:10.1093/nar/gkt574

Li, Y., Zhao, D. Y., Greenblatt, J. F., and Zhang, Z. (**March, 2013**). RIPSeeker: a statistical package for identifying protein-associated transcripts from RIP-seq experiments. *Nucleic Acids Research*, **41**(8), e94. *doi*:10.1093/nar/gkt142

Arsenault, R. J., **Li, Y.**, Maattanen, P., Scruten, E., Doig, K., Potter, A., Griebel, P., Kusalik, A., and Napper, S. (**January, 2013**) Altered Toll-like receptor 9 signaling in *Mycobacterium avium subsp. paratuberculosis*-infected bovine monocytes reveals potential therapeutic targets. *Infection and immunity*, **81**(1), 226237.

Arsenault, R. J., **Li, Y.**, Potter, A., Griebel, P. J., Kusalik, A., and Napper, S. (**November, 2012**) Induction of ligand-specific PrPC signaling in human neuronal cells. *Prion*, **6**(5), 477-488.

Arsenault, R. J., **Li, Y.**, Bell, K., Doig, K., Potter, A., Griebel, P. J., Kusalik, A., and Napper, S. (**June, 2012**) Mycobacterium avium subsp. paratuberculosis Inhibits Interferon Gamma-Induced Signaling in Bovine Monocytes. Insights into the Cellular Mechanisms of Johnes Disease. *Infection and immunity*, **80**, 3039-3048.

Li, Y., Arsenault, R. J., Trost, B., Slind, J., Griebel, P. J., Napper, S., and Kusalik, A. (**April, 2012**)

A Systematic Approach for Analysis of Peptide Array Kinome Data. *Science Signaling*, **5**(220), pl2-pl2.

Book chapters:

Zhao, D., **Li, Y.**, Greenblatt, J., & Zhang, Z. (**2014**). ncRNA-Protein Interactions in Development and Disease from the Perspective of High-Throughput Studies. In A. Emili, J. Greenblatt, & S. Wodak (Eds.), Systems Analysis of Chromatin-Related Protein Complexes in Cancer (pp. 87-115). Springer New York. doi:10.1007/978-1-4614-7931-4_5

Teaching Experience:

University of Toronto:

01/15–04/30 2012,2014 Teaching Assistant for CSC321: Introduction to Neural Networks and Machine Learning, Mississauga, Winter 2012,2014, all of the tutorials (including developing & delivering presentation slides) and all of the markings

09/10 2012–04/30 2013 Teaching Assistant for CSC209: Software Tools and Systems Programming, St. George, Fall 2012 & Winter 2013, tutorials and markings

09/10 2011–04/30 2012 Teaching Assistant for CSC343: Introduction to Databases, St. George, Winter 2011 & Fall 2012, markings

09/10–12/20 2010 Teaching Assistant for CSC236: Introduction to Theory of Computation at St. George, St. George, Fall 2010, tutorial (including blackboard demonstration of concepts and proofs) and markings

University of Saskatchewan:

05/13–06/30 2009 Teaching Assistant for CMPT214 Programming Principles and Practice

Mentor Experience:

07/04/2014–08/31/2014 Mentor of senior undergraduate visiting student Shengcheng Dong from Tsinghua University, China

10/13/2013–03/11/2014 Mentor of junior graduate student Minggao Liang from Molecular Genetic, University of Toronto

05/27/2013–08/27/2013 Mentor of third year undergraduate Quanxin Zhou from Computer Science, University of Toronto

09/10–12/20/2011 Mentor of fourth year undergraduate Alharith Hussin from Computer Science, University of Toronto

Research Experience:

09/01 2010–present Research Assistant for Prof. Zhaolei Zhang, Donnelly Centre for Cellular and Biomolecular Research, University of Toronto

09/01–10/30 2009 Research Assistant for Prof. Anthony Kusalik, Bioinformatics Laboratory, University of Saskatchewan

05/04–08/28/2009 NSERC Undergraduate Research in *Machine-learning in Prediction of Immunogenicity Response*, Bioinformatics Laboratory, University of Saskatchewan

Presentations:

Oral presentations:

10/02/2014 **Li, Y.** (2014) New computational methods to the roles of miRNAs in cancer, The Donnelly Seminar Series, The Donnelly Centre (CCBR), University of Toronto

01/08/2014 **Li, Y.** (2014) ORF-GL2 Meeting Report on RIP-Seq analysis, The Donnelly Centre (CCBR), University of Toronto

02/20/2013 **Li, Y.** (2013) ORF-GL2 Meeting Report on RIP-Seq analysis, The Donnelly Centre (CCBR), University of Toronto

06/23/2012 **Li, Y.** (2012) Computational Identification of Protein-Associated Functional Noncoding RNA from High-throughput Sequencing Data. Presented to Dr. Xiaohua Shens laboratory members at Tsinghua University and to Zhaos laboratory members at Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China

05/16/2012 **Li, Y.** (2012) ORF-GL2 Meeting Report on RIP-Seq analysis and colorectal cancer projects, The Donnelly Centre (CCBR), University of Toronto

11/02/2011 **Li, Y.** (2011) An Integrative Computational Approach to Elucidate Protein-Associated Non-coding RNA Regulators using High-throughput Sequencing Data. One-hour oral technical report at the ORF-GL2 Meeting, Donnelly Centre for Cellular & Biomolecular Research (CCBR), University of Toronto

05/10/2011 **Li, Y.** (2011) RIP-Seq Analysis and Preliminary Results. One-hour oral technical report at the ORF-GL2 Meeting, The Donnelly Centre (CCBR), University of Toronto

08/29/2009 **Li, Y.** (2009) Machine-learning using Antibody Profiles. Individual presentations to group leaders Drs. Sylvia van den Hurk, Volker Gerdts, Scott Napper, and Volker Gerdtss research team from Vaccine and Infectious Disease Organization (VIDO) for potential collaboration, University of Saskatchewan

08/26/2009 **Li, Y.**, Kusalik, A., Trost, B. (2009) Machine-learning and Infectious Disease

Research. This invited talk was delivered at the Research Alliance for the Prevention of Infectious Disease (RAPID) Annual General Meeting in Saskatoon

Poster Presentations:

07/11/2014 **Li, Y.**, Liang, C., Wong, KC, Jin, K., and Zhang, Z. (2014) Inferring probabilistic miRNA-mRNA interaction signatures in cancers: a role-switch approach. Poster for ISMB 2014 - International Society for Computational Biology at Boston

08/20/2012 **Li, Y.**, Zhao, D., Greenblatt, J., and Zhang, Z. (2012) RIPSeeker: a statistical package for identifying protein-associated transcripts from RIP-Seq experiments. Poster presented at Scientific Advisory Board Meeting at The Donnelly Centre (CCBR) & at International Conference of System Biology (ICSB) 2012, Hart House, University of Toronto

08/29/2011 **Li, Y.**, Zhao, D., Greenblatt, J., and Zhang, Z. (2011) Constructing Protein-RNA Interactome using RIP-Seq. Poster presented in McGill-Toronto Computation Molecular and System Biology Retreat held at the McGill University

08/29/2010 Arsenault, R. J., **Li, Y.**, Griebel, P., Potter, A., Babiuk, L., Kusalik, A., and Napper, S. (2010) Prion Signaling in Human Neuronal Cells. Poster presented at PrP Canada PrioNet Conference in Ottawa

03/10/2010 PrP Canada PrioNet Conference in Ottawa, Arsenault, R. J., **Li, Y.**, Griebel, P., Potter, A., Babiuk, L., Kusalik, A., and Napper, S. (2010) *Prion Signaling in Human Neuronal Cells*, University of Saskatchewan

08/29/2009 NSERC Undergraduate Research Poster, **Li, Y.**, Pajon, R., Bickis, M. and Kusalik, A. (2009). *Comparisons of Machine-Learning Methods to Predict Diagnostic Values for Leprosy Infection Based on Protein Microarray Data.*, University of Saskatchewan

Attended Conferences:

07/11–15/2014 The 22nd Annual International Conference on Intelligent Systems for Molecular Biology (ISMB 2014), Boston, MA, USA

08/19–23/2012 The 13th International Conference on System Biology (ICSB 2012), Toronto, ON, Canada

07/14–17/2012 The 20th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB 2012), Long Beach, CA, USA

Volunteer Activity and Community Engagement:

03/2014–03/2014 Scheduling events for Computer Science Grad Visit Day 2014, University of Toronto

09/2006–04/2010 Biology, Chemistry, Computer Science club registered member, University of Saskatchewan

09/2002–03/2005 Point guard in college basketball team, Tianjin University of Science and Technology

Honours, Awards & Fellowship:

2012–2015 Natural Sciences and Engineering Research Council of Canada (NSERC) Alexander GrahamBell Canada Graduate Scholarship (CGS) at Doctoral's Level. Level: National. Type: Academic and Research. Value: $105,000.

05/14/2012 Ontario Graduate Scholarship (OGS) Award Doctoral's Level 2012-2013. Level: Provincial. Type: Academic and Research. Value: $15,000. (declined)

06/30/2011 C.C. Gotlieb (Kelly) Graduate Fellowship from The Department Of Computer Science, University of Toronto. Level: Institutional. Type: Academic. Value: $500.

05/14/2011 Ontario Graduate Scholarship (OGS) Award Master's Level 2011-2012. Level: Provincial. Type: Academic and Research. Value: $15,000.

06/01 2010 Most Distinguished Graduate Award in Bioinformatics, University of Saskatchewan. Level: Institutional. Type: Academic. Value: $100.

03/19 2010 Natural Sciences and Engineering Research Council of Canada (NSERC) Alexander GrahamBell Canada Graduate Scholarship (CGS) at Master's Level. Level: National. Type: Academic and Research. Value: $17,500.

04/27 2009 Researcher of Tomorrow Fellowship, University of Saskatchewan. Level: Institutional. Type: Academic. Value: $1,000.

03/02 2009 Natural Sciences and Engineering Research Council of Canada (NSERC) Undergraduate Student Research Award. Level: Institutional. Type: Academic. Value: $4,500.

2007–2008 Named to Dean's Honour List that recognizes students who rank in top 5% of all students in the College of Arts and Science, University of Saskatchewan. Level: Institutional. Type: Academic. Value: $0.

Patents:

2012 Cortese, R., Petronis, A., Zanke, B., Zhang, Z., **Li, Y.**, Kwan, A. Diagnostic Markers and Methods for Identifying Subjects Predisposed to Colorectal Cancer

2010 **Li, Y.**, Arsenault, R. J., Griebel, P., Napper, S., and Kusalik, A. Methods Of Kinome Analysis. Approved by Canadian Intellectual Property Office.

Academic services as reviewer:

2014 *PloS Computational Biology* (papers reviewed: 1)

2014 *Nucleic Acid Research* (papers reviewed: 1)

2013-2014 *Bioinformatics* (papers reviewed: 2)

2014 *Genome Biology* (papers reviewed: 2)

2014 *BMC System Biology* (papers reviewed: 1)