

Yang Li

CONTACT INFORMATION

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CITIZENSHIP

Canada

RESEARCH INTERESTS

Computational Biology, Ageing, Machine learning, Probability.

EDUCATION

University of Oxford, Oxford, Oxfordshire, United Kingdom

D.Phil., Clinical Medicine (Bioinformatics), Expected: September 2014

- Advisors: Dr. Richard Copley, Prof. Chris Ponting

University of Liverpool, Liverpool, Merseyside, United Kingdom

M.Phil., Biological Sciences, September 2010

- Advisor: Dr. João Pedro de Magalhães, Integrative Genomics of Ageing Group
- Thesis: Comparative genomics approaches to study species divergence in ageing.

McGill University, Montreal, Qc, Canada

B.Sc., Joint Honours Mathematics and Computer Science, May 2009

- Dean's Honors' List
- Dean's Multidisciplinary Undergraduate Research List

AWARDS

Research awards:

- University of Oxford NDM Prize Studentship (2010-2014)
- FQRNT Bourses de maîtrise en recherche (2010-2011)
- Gates Cambridge Scholarship (2010-2014, declined)
- NSERC Postgraduate scholarship PGS-M (2009-2010)
- NSERC Canada graduate scholarship CGS-M (2009-2010, declined)
- NSERC Undergraduate Summer Research Award (2007 and 2009)
- NSERC Grant for research in optimization under Prof. Dimitrakopoulos (2008)
- ISM Undergraduate Summer Scholarship (2008)

ACADEMIC EXPERIENCE

University of Liverpool, Liverpool, Merseyside, UK.

Teaching Demonstrator

October 2009 to December 2009

- Demonstration and grading in Quantitative Biology I, Quantitative Biology II and Informatics for Life Sciences.

Harvard Medical School, Boston, MA, USA.

Summer research intern

May 2009 to August 2009

- I carried out experiments to study the genetics of aging using the long-lived naked mole-rat (*Heterocephalus glaber*) in the Church lab. The project involved developing a naked mole-rat genomic library, sequencing and functional characterization of selected naked mole-rat genes. I was in charge of the cross-species transcriptome computational analyses between the mole-rats and the mice.

- I developed an algorithm to design degenerate primers in species without reference genome and analyzed second generation (solexa) sequencing data.
- I gained basic molecular biology lab skills (e.g. pcr, gel, DNA extraction...)

McGill University, Montreal, Quebec Canada

Teaching Assistant **September 2008 to December 2008**

- TA for Introduction to computer science.
- Held office hours to help students.
- Graded assignments on programming and algorithms.

Undergraduate Research Assistant **May 2007 to September 2008**

- Research project in Reinforcement learning on Partially Observable Markov Decision Processes under the supervision of Dr. Doina Precup.
- Research project in Optimization on Precedence Constrained Knapsack Problems under the supervision of Dr. Roussos G Dimitrakopoulos.
- Research project in Data Mining and Collaborative Filtering for the Netflix prize under the supervision of Dr. Christophe Weibel.

Math Helpdesk Tutor **September 2007 to April 2009**

- Tutor at Math helpdesk where undergraduate math students come and seek help for mathematics or computational problems.

Grader **September 2007 to June 2008**

- Graded Analysis 1 assignments.
- Graded Probability Theory assignments.

PUBLICATIONS

Li Y, de Magalhães JP (In press) "Accelerated protein evolution analysis reveals genes and pathways associated with the evolution of mammalian longevity." *Age* (Dordr).

Yu C*, Li Y*, Holmes A, Szafranski K, Faulkes CG, Coen CW, Buffenstein R, Platzer M, de Magalhães JP, Church GM (2011) "RNA Sequencing Reveals Differential Expression of Mitochondrial and Oxidation Reduction Genes in the Long-Lived Naked Mole-Rat When Compared to Mice." *PLoS ONE* 6(11): e26729.

Aledo JC, Li Y, de Magalhães JP, Ruiz-Camacho M, Perez-Claros JA (2011) "Mitochondrially encoded methionine is inversely related to longevity in mammals." *Aging Cell* 10:198-207.

de Magalhães JP, Budovsky A, Lehmann G, Costa J, Li Y, Fraifeld V, Church GM (2009) "The Human Ageing Genomic Resources: online databases and tools for biogerontologists." *Aging Cell* 8(1):65-72.

* These authors contributed equally to this work.

POSTERS AND CONFERENCES

Participant. Volkswagen-Gulbenkian Summer School on Genome Biology and Evolution. Oeiras, Portugal. 2011.

Yang Li, Chintan Vora and João Pedro de Magalhães. Network analysis for CR-related genes. LINK-AGE 2009 annual meeting, Brussels, Belgium. 2009. (Poster)

SERVICE AND ACHIEVEMENTS

McGill ACM ICPC team, World Finalist, Sweden 2009

- ACM International Collegiate Programming Contest is an annual multi-tiered computer programming competition among the universities of the world.

Society of Undergraduate Math Student Council, 2007-2008 & 2008-2009

- Serving as VP Finance by managing the income and expenses of the society as well as meeting weekly to discuss the welfare of mathematics students at McGill.

Human Ageing Genomic Resources, August 2008-

- Contributions to the Human Ageing Genomic Resources project at genomics.senescence.info.

CS Games Team Captain, Spring 2008

- Team captain for one of McGill's CS Games team. CS Games is a computer science competition hosted by a different university in Canada annually.

Volunteer at mathnerds.com, July 2008-

- Volunteer at www.mathnerds.com where I answer questions in analysis, discrete mathematics and linear algebra.

TECHNICAL SKILLS

Programming: C, C++, R, UNIX shell scripting, Python and Java.

Applications: $\text{T}_\text{E}\text{X}$, $\text{L}^{\text{A}}\text{T}_\text{E}\text{X}$, gnuplot.

Operating Systems: OS X and UNIX.

COURSES WITH RESEARCH PROJECTS

Honors Project, Winter 2009

- Inference of age-related regulatory network using graphical network models.

Computational Biology and Methods, Fall 2008

- Identifying repeated segments of transcription factor binding sites in cis-regulatory modules of genes differently expressed with respect to age.

Machine Learning, Fall 2008

- Analysis of the singular value decomposition algorithm and regularization strategies against overfitting.

Discrete Optimization, Winter 2008

- Scheduling using integer programming for open-pit mining.

Advanced analysis of algorithms, Winter 2008

- Applications and algorithms for nearest neighbors problems.

Probabilistic Reasoning in AI, Winter 2008

- Project aiming at developing an Yahtzee playing agent.

PERSONAL

Born on September 30, 1987 in Xian, China. Moved to Brussels, Belgium in 1992 and then to Montreal, Canada in 1996. I speak fluent French, English and Chinese, I can also understand some Spanish.