

**RESUME**

**LING Han Tong**  
**Maurice**

## **Personal Particulars**

Name: LING Han Tong Maurice

Citizenship: Singaporean

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Languages Written:

English, Chinese

Languages (Dialects) Spoken:

English, Mandarin, Teochew, Cantonese, Hokkien

## **Summary of Experience**

Research scientist and lecturer in bioinformatics with experiences in computer science, statistics and molecular biology. I have a number of experiences in presenting my work and general science bilingually (English and Mandarin) to a variety of people, including undergraduate students, scientists and non-scientists.

## **Summary of Qualifications**

BSc(Hons) (Mol Cell Biol), BSc(Comp), CPT, SN, FIFA, MACM

PhD candidate

## **Interests and Hobbies**

Personal finance management, Database design and management, Database federation, Python programming, Strategic and contingency planning, Genomics and transcriptomics data analysis, Biomedical literature analysis, e-Research, Infectious diseases and wellness management, Personal tutoring and pastoral care, Career guidance, Swimming, Chinese and ancient world history, Working out in gymnasiums, Tea and coffee

## Summary of Accomplishments

- Total of 9 publications: 6 peer-reviewed manuscripts, 3 posters.
- Made 5 media appearances.
- Invited on 6 occasions to present my work to fellow scientists and students.
- Wrote 2 module syllabi in the area of sports sciences and developed the course materials.
- Current Co-Editor-in-Chief and founding editorial member for The Python Papers Anthology. Authored the editorial policy of the journals under the anthology.
- Member of 3 Course Management Teams (Diploma in Nutrition, Health and Wellness; Specialist Diploma in Nutrition and Health Promotion; Specialist Diploma in Biotechnology).
- Provided pastoral care and academic support for 175 undergraduates and postgraduate students for a period of 2 years as Resident Adviser and Tutor.
- Established assessment criteria for International Fitness Association's Master Certification Programmes and awarded the title of "IFA Senior Fellow".
- Conducted laboratory practical for more than 1100 undergraduates as Head Demonstrator
- Managed the installation and configuration of building-wide wireless access points in United Square Shopping Complex as Systems Engineer / Integrator
- Directed the operations and contingency planning for a fund raising event involving more than 250 volunteers and co-ordinating emergency services over 8 operation sectors housing more than 30000 residences. Project was flagged off by a Member of Parliament and more than SGD 30000 was raised in a single day.

# Skills Inventory

- **Technical Skills**

- **Information Management (Computing) Skills**

- Database design and SQL
- Flat-file database management
- Firebird/InterBase management
- Object-Relational concepts
- Data warehousing concepts
- Mac OSX/Linux administration
- OSX/Linux emulation (Fink)
- Z/Petri Net/UML modeling
- Soft system methodology
- Reverse engineering
- Experienced in the following additional tools: Cytoscape, BiNGO, Graphviz, ArgoUML, Eclipse
- Python/C programming
- Python XMLRPC/SOAP API
- Information retrieval/extraction
- Computational linguistics
- Text/Data mining
- CVS/SVN version control

- **Experimental Laboratory Skills**

- Basic molecular techniques
- Basic clinical techniques
- Basic microscopy
- Protein purification
- DNA fingerprinting
- Animal (mouse) handling
- Microarray technology
- Mammalian cell culture
- Bacterial/Yeast cell culture
- Evolutionary studies
- Sports testing

- **Statistical Skills**

- Experimental design
- Statistical text analysis
- Non-parametric statistics
- Time series analysis
- Analysis using SPSS, Minitab and R

- **Transferable Skills**

- Proposal/report writing
- Writing/Editing for lay-person and publication
- Public speaking/breaking down difficult concepts for lay-person
- Mentoring/coaching individuals
- Counselling individuals
- Delegating responsibilities
- Managing teams
- Business process analysis/re-engineering
- Interpretation/translation between English and Chinese
- Planning agenda/meetings
- Reading volumes of materials
- Information searching
- Web-based project management
- Cash budgeting/accounting
- Coordinating time/resources
- Determining a problem
- Decomposing problems into manageable chunks
- Developing/implementing project plans

## Education

- 2004 -  
current      **Doctor of Philosophy (Science)**  
The University of Melbourne, Australia  
Thesis: Understanding Mouse Lactogenesis by Transcriptomics and Literature Analysis
- This thesis refuted previous assumption that generic computational linguistics processor is unable to process biomedical text due to domain-specificity and attributed it to complementary parts-of-speech tag use in the shallow parsing (breaking down sentences into phrases) process.
  - This thesis confirmed that subject-verb-object structure is a suitable intermediate for extracting protein-protein interactions from text and demonstrated the flexibility of this technique in information extraction.
  - This thesis demonstrated that information extraction by computational linguistics can supplement information extraction by statistical co-occurrence.
  - Using computational and statistical information extraction, a filter representing the current state of biological knowledge was built to be used with microarray analysis for identifying potential novel hypotheses for further research.
  - This thesis examined the relevance of mouse hormone-treated mammary tissue culture in studying mouse lactogenesis by comparing the transcriptomes of cultured tissues with *in vivo* mammary tissues across the lactation cycle using Affymetrix microarrays. It concluded that the tissue culture is useful in the study of primary hormonal responses but is unlikely to be useful in studying sustained responses and the tissue culture is a useful tool to “re-construct” the set of hormonal stimuli required to simulate mouse mammary tissues into lactogenesis.
- 2008 -  
2009      **Certificate in Teaching (Higher Education)**  
Singapore Polytechnic, Singapore
- 2005 -  
2007      **Bachelor of Science (Computing)**  
University of Portsmouth, UK
- 2003 -  
2004      **Bachelor of Science (Honours) (Molecular and Cell Biology)**  
The University of Melbourne, Australia  
Thesis: Identifying the Roles of Insulin, Prolactin and Glucocorticoid in the Initiation of Murine Lactogenesis
- A pilot project to examine the effects of each hormone in the presence of the other two hormones using cDNA microarray.
- 2002 -  
2003      **Bachelor of Science (Molecular and Cell Biology)**  
The University of Melbourne, Australia
- 2001 -  
2003      **Advanced Diploma in Computing**  
National Computing Centre, United Kingdom  
Project: InterBase Data Warehouse Builder (IB-DWB) Version 1.0

- 1996 - **Diploma in Biotechnology (General Biotechnology)**  
 1999 Singapore Polytechnic, Singapore  
 Project: Development of Rapid Strain Typing of Aedes Mosquitoes Adult DNA by Random Amplified Polymorphic DNA (RAPD) Technique
- A feed-forward artificial neural network model was developed for binary strain typing of RAPD-DNA fingerprints.
  - A search in PubMed for articles published before 2000 on “artificial neural network RAPD classification” did not yield any results, suggesting that this may be pioneering work.
- 1996 - **Diploma in Computer Studies (Computer Science)**  
 1997 National Computing Centre, United Kingdom
- Diploma with Credit
- 1992 - **General Certificate of Education (Ordinary Level)**  
 1995 Pasir Ris Secondary School, Singapore

## Awards and Scholarships

- 2005 Melbourne Abroad Traveling Scholarship, The University of Melbourne  
 2005 Postgraduate Overseas Research Experience Scholarship, The University of Melbourne
- 2005 F.H. Drummond Travel Award, The University of Melbourne  
 2005 Melbourne International Fee Remission Scholarship, The University of Melbourne
- 2004 Science Faculty Scholarship, The University of Melbourne  
 2004 CRC for Innovative Dairy Products (PhD Scholarship)  
 2003 CRC for Innovative Dairy Products (Honours Scholarship)  
 1998 The Singapore Institute of Biology Essay Writing Competition

## Fellowships

- 2004 IFA Senior Fellow (Fellow of International Fitness Association)
- Awarded on the work of establishing formal guidelines for the certification of Master Fitness Instructor and Senior Sports Nutritionist, supported by relevant academic qualifications and knowledge.
  - Currently involved in the certification examination of Master Fitness Instructor and Senior Sports Nutritionist

## Professional and Industrial Certifications

- 2004 - **Senior Sports Nutritionist / Fitness Instructor**  
 current International Fitness Association

## Work / Research Experience

Apr 2008 - **Lecturer**

current Singapore Polytechnic (School of Chemical and Life Sciences)

- Sit in course management teams for Diploma in Nutrition, Health and Wellness; Specialist Diploma in Nutrition and Health Promotion; and Specialist Diploma in Biotechnology.
- Developed course materials for the following modules: (1) Introduction to biochemistry, (2) Exercise and fitness, (3) Fitness and wellness throughout the lifespan

Jul 2004 - **Research Assistant** (in pursuant of Ph.D (Science))

current The University of Melbourne (Dept. of Zoology)

- Thesis: Understanding the Hormonal Aspects of Mouse Lactogenesis by Transcriptomics and Literature Analysis
- Handpicked by the Faculty of Science to be involved in the planning/organizing university-wide committee for the university's open house in Singapore (Orchard Hotel, October 2005). Only student to sit in the committee.
- Wrote marketing materials on bioinformatics for the Faculty of Science.

May 2006 - **Resident Adviser and Tutor**

Mar 2008 University College, The University of Melbourne, Australia

- Providing pastoral care and academic support for 175 undergraduates and postgraduate students
- Tutored in “Academic writing for senior science students” and “Introductory Programming in C”

Sept 2004 - **Head Demonstrator**

May 2005 The University of Melbourne (Dept. of Zoology)

- Lead practical classes in biology to more than 1100 first year students
- Demonstrated for third year practicals in Development Biology

Jul 2003 - **Research Assistant** (in pursuant of B.Sc.(Hons) in Mol. Cell Biology)

Jun 2004 The University of Melbourne (Dept. of Zoology)

- Thesis: Identifying the Roles of Insulin, Prolactin and Glucocorticoid in the Initiation of Murine Lactogenesis
- Used explant cultures and microarray technology for gene expression profiling, and wrote a series of scripts for data analysis
- Donated 2 files to the BioPython project (www.biopython.org)
- Involved in numerous legal discussions with the CRC for Innovative Dairy Products on electronic data records and digital signatures

Mar 2003 - **Research Fellow (Honourary)**

June 2003 The University of Melbourne (Dept. of Anatomy and Cell Biology)

- Expression studies of BMP4 receptor in lens development
- Assisted in establishing in situ hybridization techniques in the laboratory
- Mouse handling and performed microtome sectionings.

- Feb 2002 - **System Engineer / Integrator**
- June 2002 Telford Virtual Technology Private Limited, Singapore
- Installation and configuration of building-wide wireless access points in United Square Shopping Complex for United Overseas Land Limited, governing body of United Overseas Bank (UOB), Singapore
  - Worked closely with the consultants from Parsons Brinckerhoff and IT department of United Overseas Land Limited
  - Involved in reading, understanding and fulfilling contract terms
- May 2002 - **Team Leader / Researcher** (in pursuant of Adv. Dip. in Computing)
- Jan 2003 National Computing Centre, United Kingdom
- Project: InterBase Data Warehouse Builder (IB-DWB) Version 1.0
  - Prototyped a data warehouse builder based on Borland InterBase 6
  - Resulted in a conference paper in the First Australian Undergraduate Students' Computing Conference in 2003
- Aug 1999 - **National Service (Logistics / Administrative Assistant)**
- Feb 2002 Singapore Armed Forces, Singapore
- Jun 1999 - **Laboratory Technologist (Casual)**
- Jul 1999 Defense Medical Research Institute, Singapore
- Research on myopia via SNP
  - Employed by Dr. Eric Yap, Principal Research Scientist, on basis of Final Year Project work in Singapore Polytechnic
- Sept 1998 - **Research Assistant** (in pursuant of Dip. in Biotechnology)
- Feb 1999 Singapore Polytechnic, Singapore
- Project: Development of Rapid Strain Typing of Aedes Mosquitoes Adult DNA by Random Amplified Polymorphic DNA (RAPD) Technique
  - Isolated intact genomic DNA from more than 150 mosquito larvae
  - Wrote a computer software based on supervised artificial neural network (with assistance from a friend) to analyse RAPD fingerprints
- Nov 1997 – **Laboratory Technologist (Attachment Student)**
- Dec 1998 Institute of Molecular and Cell Biology, Singapore
- Worked under Dr. Anthony Ting on cloning of rSec6/8 genes and performed yeast 2-hybrid analysis for studying vesicle trafficking
- Jan 1996 - **Relief Teacher**
- May 1996 Ministry of Education, Singapore
- Highly recommended by ex-teachers in Gongshang Primary School, Singapore (my alma mater) over a period of 5 months.

## Positions Held

- June 2009 - **Vice-President**  
- current Python User Group (Singapore) (ROS 2060/2009, Singapore)
- Oct 2008 - **Architect and Project Director**  
- current Cyber Laboratory Notebook (CyNote) (<http://cynote.sf.net>)
- Apr 2008-  
current **Co-Editor-in-Chief**  
The Python Papers Anthology  
incorporating The Python Papers (ISSN 1834-3147), The Python Papers  
Monograph Series, and The Python Papers Source Codes (ISSN 1836-  
621X)
- July 2007 - **Committee Member**  
- current Firebird Foundation (Incorporation Number: INC9878828, Australia)
- Jan 2004 - **Architect and Project Director**  
- current Open DataWarehouse Builder (OpenDWS) (<http://opendws.sf.net>)
- May 2006 - **Associate Editor (Founding Editorial Member)**  
Apr 2008 The Python Papers (ISSN 1834-3147)  
  - My responsibilities include chairing peer-reviews of academic submission and I am responsible for authoring the review policy of the journal
- Nov 2002 - **Publication Team Member** (ISBN 0-646-4275-1-2)  
Nov 2003 Australian Undergraduate Students' Computing Conference 2003
- Jan 2001 - **Operations Manager (Advisory)**  
Jun 2001 Fund Raising Project for Gujarat Earthquake Relief  
  - Project was flagged off by a Member of Parliament and more than SGD 30000 was raised in a single day
  - I was the director of operations and contingency planning on the day of event, managing more than 250 volunteers and coordinating emergency services over 8 operation sectors housing more than 30000 residences
- Dec 1997 - **Manpower Vice-Chairperson**  
Apr 1999 Singapore Polytechnic Poly Peers (Peer Support Group)
- Dec 1996 - **Deputy S1 (Administration Officer)**  
Jul 1999 Cadet Lieutenant promoted to Senior Cadet Lieutenant in 1996  
National Cadet Corp, Singapore  
  - In charge of the routine administration of a unit and co-ensuring that training and administrative objectives are met.
  - In charge of more than 600 trainees, junior officers and military trainers in training camps in 1996, and co-authorizing the issue of firearms (M16S1) for training.

## Professional Memberships

- 2000 - 2008 Association of Computing Machinery (Student Member)
- 2006 – current Pattern Recognition and Machine Intelligence Association, Singapore
- 2008 – current Association of Computing Machinery (Professional Member)
- 2009 – current Python User Group (Singapore)

## Media Appearances

- 2006 The Age, A2 Section (Australia)
  - Julie Szego (journalist) on academic writing for the general public (knowledge transfer), entitled “Academic Idyll” in the A2 Section of The Age, 18 Nov 2006 (page 24-25)
- 2006 Straits Times (Singapore)
  - Ling Yeo (journalist) on connecting overseas Singaporeans back home by infocomm, special section on e-government, entitled “At home abroad” in Tuesday 30 May 2006 issue (page S18).
- 2006 The Australian Financial Review
  - Geoff Maslen (journalist) on an article in the weekly section on education, entitled “Centres link postgrads with industry – Research powered by overseas helpers”, in the Monday 8 May 2006 issue of the Australian Financial Review (page 34).
- 2006 Australian Education: Passport to a global career (ISBN 1-921156-12-0)
  - Appeared and quoted in page 92, chapter on Research: cooperation and innovation
- 2003 The Australian Undergraduate Students' Computing Conference
  - Sue Slamen and Barry Clarke (presenters) and Suresh Gnasegarah, Ioanna Ioannou, Maurice Ling, Ben Rubinstein and Vanessa Smith (interviewees), (half-hour interview as part of a 13-part educational radio series for broadcast over the Asia-Pacific region), SMART SOCIETIES, ABC Radio National.

## References

Professor Kevin Nicholas  
Professor of Biosciences  
Institute of Technology Research and  
Innovation  
Deakin University, Australia  
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Assoc. Prof. Lin Feng  
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School Of Computer Engineering  
BioInfomatics Research Centre  
Nanyang Technological University,  
Singapore  
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Professor Derek Chan  
Deputy Dean of Science  
Personal Chair in Mathematics  
The University of Melbourne, Australia  
Scientific Adviser, Quantum Precision  
Instruments, Singapore  
Email: D.Chan@unimelb.edu.au

Dr. Mary Familiari  
Lecturer  
Department of Zoology  
The University of Melbourne, Australia  
Email: m.familiari@unimelb.edu.au

## Peer - Reviewed Publications

- [In review] **Ling, MHT**. 2009. Understanding Mouse Lactogenesis by Transcriptomics and Literature Analysis.
- [In review] Kuo, CJ, **Ling, MHT**, Lin, KT, Hsu, CN. 2009. BioADI: A Machine Learning Approach to Identify Abbreviations and Definitions in Biological Literature.
- [In review] **Ling, MHT**, Menzies, K, Lefevre, C, Nicholas, KR. 2009. The Transcriptomics of Lactogenesis in the Murine Mammary Explant Model; Comparison with In Vivo Data.
- [In review] **Ling, MHT**. 2009. Ten Z-test Routines from Gopal Kanji's 100 Statistical Tests.
- Ling, MHT**, Lefevre, C, Nicholas, KR. 2008. Filtering Microarray Correlations by Statistical Literature Analysis Yields Potential Hypotheses for Lactation Research. *The Python Papers* 3(3): 4.
- Ling, MHT**, Lefevre, C, Nicholas, KR. 2008. Parts-of-Speech Tagger Errors Do Not Necessarily Degrade Accuracy in Extracting Information from Biomedical Text. *The Python Papers* 3 (1): 65-80
- Ling, MHT**, Lefevre, C, Nicholas, KR, Lin, F. 2007. Re-construction of Protein-Protein Interaction Pathways by Mining Subject-Verb-Objects Intermediates. In J.C. Ragapakse, B. Schmidt, and G. Volkert (Eds.), *Proceedings of the Second IAPR Workshop on Pattern Recognition in Bioinformatics (PRIB 2007)*. Lecture Notes in Bioinformatics 4774. (pp. 286-299) Springer-Verlag.
- Ling, MHT**. 2007. Firebird Database Backup by Serialized Database Table Dump. *The Python Papers* 2 (1): 12-16.
- Ling, MHT**. 2006. An Anthological Review of Research Utilizing MontyLingua, a Python-Based End-to-End Text Processor. *The Python Papers* 1 (1): 5-12.
- Ling, MHT** and So, CW. 2003. Architecture of an Open-Sourced, Extensible Data Warehouse Builder: InterBase 6 Data Warehouse Builder (IB-DWB). In Rubinstein, B. I. P., Chan, N. & Kshetrapalapuram, K. K. (Eds.), *Proceedings of the First Australian Undergraduate Students' Computing Conference*. (pp. 40-45).

## Abstracts and Posters

- Lim, MH, Quek, SG, Teoh, EJM, **Ling, MHT**, Chan, CY. 2009. Protein profiles of bacteria under short term and long term exposure to environmental stress. Young Scientists' Symposium. Singapore Science Centre. 6<sup>th</sup> March 2009.
- (Invited talk) **Ling, MHT**. 2008. A tour of bioinformatics. Freshman Seminars 2008 – A Guided Tour in Science. Faculty of Science, National University of Singapore.
- (Invited talk) **Ling, MHT**. 2007. Re-constructing protein-protein interaction networks using text mining (for understanding microarray analyses). Institute of Information Science, Academia Sinica, Taiwan (R.O.C)
- (Invited talk) **Ling, MHT**. 2006. MontyLingua (and ConceptNet) to simplify natural text processing tasks. *Proceedings of the Open Source Developers Conference 2006*.
- Ling, MHT**, Lefevre, C, and Nicholas, KR. 2006. A Pipeline for Analysis of Published Abstracts for Information on Protein-Protein Inter-Relations. *Proceedings of the Fourth Asia-Pacific Bioinformatics Conference*.
- (Invited talk) **Ling, MHT**. 2006. Functional modeling of mouse lactation using published abstracts and text mining. Language Technology Seminar Series. Department of Computer Science and Software Engineering, The University of

Melbourne, Australia.

**Ling, MHT**, Lefevre, C, and Nicholas, KR. 2005. Mosirium: A Modelling and Simulation Tool for Lactation in the Mouse. Proceedings of the Third Asia-Pacific Bioinformatics Conference.

(Invited talk) **Ling, MHT**. Molecular Pathways from Text. Engineering and Science Seminar 2005, The University of Melbourne

(Invited talk) **Ling, MHT** and Loke, JY. 2003. Expert Systems: Development and Current Utility (Tutorial, Extended Abstract). In Rubinstein, B. I. P., Chan, N. & Kshetrapalapuram, K. K. (Eds.), Proceedings of the First Australian Undergraduate Students' Computing Conference. (pp. 121).