

# Curriculum Vitae

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## Educations

- |                |   |
|----------------|---|
| 1994.9-1998.7: | B.Sc. Electrical Engineering and Automation,<br>Harbin Institute of Technology (HIT), China         |
| 1998.9-2000.7: | M.Sc. Mechatronics Engineering,<br>Harbin Institute of Technology (HIT), China                      |
| 2000.9-2006.3: | PhD. Computer Science and Technology,<br>Harbin Institute of Technology (HIT), China                |
| 2006.7-now:    | Postdoctoral Fellow of Electronic Engineering,<br>The Chinese University of Hong Kong (CUHK), China |

## Technological Skills

1. Familiar with **C/C++** and **Matlab** programming;
2. Familiar with the design of **Circuits**, principles of **DSP** and so on.
3. Familiar with **Signal Processing** and **Modeling**.
4. Familiar with **Pattern Recognition** and **Machine Learning**.

## Research Interests

Medical Signal Processing; Pattern Recognition; Nonlinear Modeling; Machine Learning; Biological Effects Analysis; Fuzzy Logic.

## Awards

1. Excellent scholarship six times (1994-1998)
2. Guanghua Excellent Student scholarship (1999)
3. The “Three Excellence” Student of HIT (1999)
4. The winner of the 3<sup>rd</sup> best student project proposal selected by IEEE Technical Committee on Computational Medicine (2003)
5. The “Ongoing Excellent PhD Candidate” Student of HIT (2003)
6. Guanghua Excellent Student Scholarship (2004)
7. Best HIT PhD Graduate Scholarship (2007, two percent)
8. Shun Hing Fellowship (2006-2007)

## Working Experience

1. 1994.10 ~ 1995.10 Member in newsroom in College of Mechanical and Electrical Engineering of Harbin Institute of Technology.
2. 1996.10 ~ 1997.7 Salesman for Promoting the Products of Sanjing Medical Company.
3. 1997.6 ~ 1997.7 Internship in the HIT Gongda Electric Power Factory.
4. 1997.10 ~ 1998.5 Consultant for the Middle School Students to Participate the National Olympic Mathematical Competition.
5. 1999.1 ~ 2000.7 Secretary of Communist Party Branch in Class.
6. 1999.6 ~ 1999.9 Volunteer of the third International Conference on Fluid Power Transmission and Control
7. 2000.3 ~ 2000.5 Teacher Assistant for the graduate students’ course “Internet Resource & Service”
8. 2001.3 ~ 2001.5 Research Assistant in Department of Computing of the Hong Kong Polytechnic University, for the project “Medical Signal Processing Technology”.
9. 2002.3 ~ 2002.5 Teacher Assistant for the graduate students’ course “Internet Resource & Service”
10. 2002.9 ~ 2003.2 Part-time Lecturer for the undergraduate students’ course “Pattern Recognition” in Department of Computer Science of the Heilongjiang Institute of Technology.
11. 2002.9 ~ 2004.6 Commissary of Communist Party Branch in Grade.
12. 2003.3 ~ 2003.6 Part-time Lecturer for the undergraduate students’ course “Artificial Intelligence” in Department of Computer Science of the Heilongjiang Institute of Technology.

13. 2003.11 ~ 2004.4      Research Assistant in Department of Electronic and Information Engineering of the Hong Kong Polytechnic University, for the project “Biomedical Image Processing and Human Body Based Diagnosis (1.42.37.A446)”
14. 2004.11 ~ 2005.1      Research Assistant in Department of Computing of the Hong Kong Polytechnic University, for the project “Pulse Detecting System Using Multi-Sensor Technology (4.61.37.Z07R)”
15. 2005.8 ~ 2006.2      Research Assistant in Department of Computing of the Hong Kong Polytechnic University, for the project “Pulse Detecting System Using Multi-Sensor Technology (4.61.37.Z07R)”
16. 2006.7 ~ 2009.5      Postdoctoral Fellow in biomedical lab in Department of Electronic Engineering, The Chinese University of Hong Kong (CUHK)

## **Academic Activities**

### 1. Reviewer

The journals of IEEE Transactions on Biomedical Engineering, IEEE/ASME Transactions on Mechatronics, IEEE Transactions on SMC: C, IEEE Antennas and Propagation Magazine, Pattern Recognition, International Journal of Information Acquisition, EURASIP Journal on Advances in Signal Processing, Computer Methods and Programs in Biomedicine, Journal of Medical Systems, Journal of Biomedical Science and Engineering, Scientific Journals International, Control and Intelligent Systems Journal and so on

7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> World Multi-Conference on Systemics, Cybernetics & Informatics (SCI2003, SCI2004, SCI2005, SCI2006, SCI2007, SCI2008)

The 2nd, 3rd International Conference on Computer, Communication & Control Technologies (CCCT2004, CCCT 2005)

The 3rd International Conference on Education & Information Systems Technologies and Applications (EISTA '05)

2. Member

Member of IEEE BME Society

Member of IEEE Communication Society

Member of China Computer Federation

Program Committee for IEEE International Conference on Mechatronics and Automation (ICMA2006)

Program Committee for IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2006)

Program Committee for the 4th International Conference on Neural Networks and Artificial Intelligence (ICNNAI'2006)

Scientific Committee for the 5<sup>th</sup> WSEAS International Conference on Telecommunications & Informatics 2006

Program Committee for the IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2008)

Program Committee of the IEEE International Conference on Automation and Logistics (ICAL2008)

Member of editor board of Scientific Journals International (SJI)

Member of editorial board of Sensors & Transducers Journal

3. Session Chair

Session Chair of IEEE International Conference on Integration Technology (ICIT2007)

4. Editor

International Journal of Medicine and Medical Sciences;  
Scientific Journal International; Sensors & Transducers Journal.

5. Publications Chair

The 8<sup>th</sup> World Congress on Intelligent Control and Automation, July 7-9, 2010, Jinan, Shandong Province, China

## Publications

### 2008

- **L.S. Xu**, Max Q.-H. Meng and H.L. Ren, “Applicability of Homogeneous Human Trunk Phantom in Estimating the Radiation Characteristics of Body-worn Devices,” *International Journal of Information Acquisition.*, March 2008, 5(1): 65-82.
- **L.S. Xu**, Max Q.-H. Meng and K.Q. Wang, “Pulse Image Recognition Using Fuzzy Neural Network,” *Expert Systems With Applications*, 2009, 36: 3805-3811. <http://dx.doi.org/10.1016/j.eswa.2008.02.028>. **(SCI source)**
- **L.S. Xu**, Max Q.-H. Meng and H.L. Ren, “Electromagnetic Radiation from Ingested Sources in the Human Intestine at the Frequency of 2.4GHz,” *Proceedings of the 23rd Progress In Electromagnetics Research Symposium*, Hangzhou China, 24-28 March 2008. **(EI source)**
- **L.S. Xu**, Max Q.-H. Meng, H.L. Ren, Y.W. Chan, “Radiation Characteristics of Ingested Wireless Device at Frequencies from 430 MHz to 3 GHz,” *Proceedings of the 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 2008, pp. 1250-1253. **(EI Source) (PMID source)**
- **L.S Xu**, Max Q.-H. Meng, R. Liu, K.Q. Wang, “Robust Peak Detection of Pulse Waveform Using Height Ratio,” *Proceedings of the 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 2008, pp. 3856-3859. **(EI Source) (PMID source)**
- **L.-S. Xu**, Max Q.-H. Meng Y.W. Chan, C. Hu and H.B. Wang, “Influence of Anesthetic and Dead Animal Bodies on Ingested Wireless Device,” *Proceedings of IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, July 2-5, 2008, Xi’an China, pp. 176-180. **(EI Source)**
- **L.S. Xu**, Max Q.-H. Meng, C. Shi, K.Q. Wang, N.M. Li, “Quantitative Analyses of Pulse Images in Traditional Chinese Medicine,” *Medical Acupuncture*. September 1, 2008, 20(3): 175-189. <http://www.liebertonline.com/doi/abs/10.1089/acu.2008.0632> **(PMID source)**
- **L.S. Xu**, Max Q.-H. Meng, H.L Ren, and Y.W. Chan, “Radiation Characteristics of Ingestible Wireless Devices in Human Intestine Following Radio Frequency Exposure at 430, 800, 1200 and 2400 MHz,” Accepted by *IEEE Transactions on Antennas and Propagation*, 2008. **(EI Source) (SCI source)**
- **L.S. Xu**, Max Q.-H. Meng, X.H. Qi, K.Q. Wang, “Morphology variability analysis of wrist pulse waveform for assessment of arteriosclerosis status,” Accepted by *Journal of Medical Systems*.
- **L.S. Xu**, Max Q.-H. Meng and H.L. Ren, “Radiation Characteristics of 2.4 GHz Ingestible Wireless Devices in Human Intestine,” Submitted to *IEEE Transactions on BME*.
- **L.S. Xu**, D. Zhang, and K.Q. Wang, “Gaussian Kernel Approximate Entropy Algorithm For Analyzing Time-Series Data,” Submitted to *European Journal of Applied Signal Processing*.
- **L.S. Xu**, D. Zhang, and K.Q. Wang, “Classifying Pulse Waveforms Using A Generalized Dynamic Time Warping Algorithm,” Submitted to *Pattern Recognition*.

### 2007

- **L.S. Xu**, Max Q.-H. Meng and H.L. Ren, “Effect of Subject Size on Electromagnetic

Radiation from Source in Human Body Following 2450MHz Radio Frequency Exposure,” *The proceedings of the 2007 IEEE International Conference on Integration Technology*, 20-23 March 2007, pp. 326-329. **(EI Source)**

- **L.S. Xu**, D. Zhang, K.Q. Wang, N.M. Li and X.Y. Wang, “Baseline Wander Correction in Pulse Waveforms Using Wavelet-Based Cascaded Adaptive Filter,” *Computers in Biology and Medicine*, Vol 37, No 5, May 2007, pp. 716-731. **(EI 071110491387) (SCI 163NL) (PMID: 16930579) (SCI impact factor 1.068)**
- **L.S. Xu**, Max Q.-H. Meng and K.Q. Wang, “Pulse Image Recognition Using Fuzzy Neural Network,” *The proceedings of the 29th International Conference of the IEEE Engineering in Medicine and Biology Society*, 22-26 Aug. 2007 pp. 3148-3151. **(EI Source) (PMID: 18002663)**
- **L.S. Xu**, Max Q.-H. Meng and H.L. Ren, “Variation of Radiation Effects and Signal Efficiency with Distance between Electromagnetical Source and Trunk Model,” *The proceedings of the 29th International Conference of the IEEE Engineering in Medicine and Biology Society*, 22-26 Aug 2007, pp. 1184-1187. **(EI Source) (PMID: 18002174)**
- H.L. Ren, Max Q.-H. Meng, **L.S. Xu**, “Indoor Patient Position Estimation Using Particle Filtering and Wireless Body Area Networks”, *The proceedings of the 29th International Conference of the IEEE Engineering in Medicine and Biology Society*, 22-26 Aug 2007, pp. 2277–2280. **(EI Source) (PMID: 18002445)**
- Max Q.-H. Meng, C. Hu, X.N. Wang, **L.S. Xu**, T.X. Ma, “Method and System for Tracking and Location of the Micro-device in Human Body”, Chinese Patent, Application No. 200710074398.3 (Invention Patent) Applied on May.18th 2007 (In Chinese).
- Max Q.-H. Meng, C. Hu, X.N. Wang, **L.S. Xu**, T.X. Ma, “A wearable device with tracking and location units array,” Chinese Patent, Application No. 200720120233.0 (Utility Model Patent) Applied on May.18th 2007. Open at April 30 2008. (In Chinese)

## 2006

- **L.S. Xu**, D. Zhang, and K.Q. Wang, and L. Wang, “Arrhythmic Pulses Detection Using Lempel-Ziv Complexity Analysis,” *EURASIP Journal on Applied Signal Processing* 2006 (2006), Article ID 18268, 12 pages. **(EI 06159821102) (SCI 083HU) (SCI impact factor 0.463)**
- D. Zhang, K.Q. Wang, and **L.S. Xu**, “The Approaches to Extracting the Features of Chinese Pulse Image,” *Chinese Patent*, Pending number: 200610009639.1 (In Chinese)
- D. Zhang, W.C. Tang, and **L.S. Xu**, “Pulse Sensor for Traditional Chinese Medicine, Pulse Detecting Device of Three Portions and Nine Pulse-Takings and the Method Thereof”, (Application No.: PIN051832E), Filed: April 6, 2006.
- **Xu L.S.**, K.Q. Wang, L Wang, N.M. Li, “Pulse Contour Variability before and after Exercise,” *The proceedings of the 19th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2006)*, 22-23 June 2006 in Salt Lake City, Utah USA, pp. 237-240. **(EI 065110322148)**
- Chen C.H., Wang K.Q., Li N.M., **Xu L.S.**, Zhang D.Y., Geng B., “A New Approach of Neuration Data Compression Based on Huffman Function,” *The Journal of Sichuan TOP Vocational Institute of Information Technology*, vol. 2, no. 3, 2006 (In Chinese)

## 2005

- **L.S. Xu**, D. Zhang, and K.Q. Wang, “Wavelet-based Cascaded Adaptive Filter for Removing Baseline Drift in Pulse Waveforms,” *IEEE Transactions on Biomedical Engineering*, Nov. 2005, pp. 1973-1975. **(EI 05469477688) (SCI 978UG) (PMID: 16285403) (SCI impact factor 2.302)**
- **L.S. Xu**, K.Q. Wang and L. Wang, “Pulse Waveforms Classification Based on Wavelet Network,” *The proceedings of the 27th International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, 01-04 Sept. 2005, pp. 4596-4599. **(EI 070710425312) (PMID: 17281263)**
- L. Wang, K.Q. Wang, and **L.S. Xu**, “Lempel-Ziv Decomposition Based Arrhythmic Pulses Recognition,” *The proceedings of the 27th International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, 01-04 Sept. 2005, pp. 4606-4609. **(EI 070710425315) (PMID: 17281266)**
- **L.S. Xu**, K.Q. Wang and L. Wang, “Gaussian Kernel Approximate Entropy Algorithm for Analyzing Irregularity of Time-Series,” *Proceedings of the International Conference on Machine Learning and Cybernetics*, 2005, pp. 5605-5608. **(EI 05509539724)**
- **Patent** “An Automatic Three-Position, Multipoint, Pulse Image Detection Device,” Submitted to *USA Patent*.
- **Patent** “Pulse Detection in Traditional Chinese Medicine Using Multiple (pressure / photoelectric / ultrasonic) Sensor,” Submitted to *USA Patent*.
- D. Zhang, K.Q. Wang, and **L.S. Xu**, “The Chinese Pulse Image Acquisition Device Which Can Automatically Adjust the Contact Pressure,” *Chinese Patent*, Patent number: 200520036985.X (In Chinese)

## 2004

- **L.S. Xu**, K.Q. Wang, and D. Zhang, “Modern Researches on Traditional Chinese Pulse Diagnosis,” *European Journal of Oriental Medicine*, vol.4, no.5, pp. 46-54, 2004.
- Wang, L., K.Q. Wang, and **L.S. Xu**, “Recognizing Wrist Pulse Waveforms with Improved Dynamic Time Warping Algorithm,” *Proceedings of the International Conference on Machine Learning and Cybernetics*, Shanghai, 26-29 August 2004, pp. 3644-3649. **(EI 04458447106)**
- Wang, K.Q., L. Wang, **L.S. Xu**, and D.H. Wang, “SVM Classification for Discriminating Cardiovascular Disease Patients from Non-cardiovascular Disease Controls Using Pulse Waveform Variability Analysis,” *17th Australian Computer Society (ACS) Australian Joint Conference on Artificial Intelligence*, 2004, pp. 109-119. **(EI05329284806) (SCI BBM32) (SCI impact factor 0.302)**
- Wang, L., **L.S. Xu**, and K.Q. Wang, “Wrist Pulse Waveform Variability Analysis,” *Proceedings of the World Engineers Convention (WEC2004)*, Shanghai, China, November 2 - 6, 2004, pp.247-250. **(ISTP BDM44)**
- **L.S. Xu**, *et al.*, “Physiological Research into the Pulse Waveforms of 105 Young Students,” *Proceedings of 7<sup>th</sup> National Conference of National Conference of Integrated Medicine*, Urumchi, 2004. pp. 86-88. (In Chinese)

## 2003

- **L.S. Xu**, K.Q. Wang, D. Zhang, Y.S. Li, Z.J. Wan, J. Wang, “Objectifying Researches on Traditional Chinese Pulse Diagnosis,” *Informatica Medica Slovenica*, August 2003, pp. 56-63.
- Wang, K.Q., **L.S. Xu** and D. Zhang, “Approximate Entropy Based Pulse Variability Analysis,” *The proceedings of the 16th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2003)*, 2003, pp. 236-241. **(EI 03347605191)**
- Wang, K.Q., **L.S. Xu**, and L. Wang, “Pulse Baseline Wander Removal Using Wavelet Approximation,” *The proceedings of IEEE Computers in Cardiology*, 2003, pp. 605-608. **(EI 04368334858)**

## 2002

- **L.S. Xu**, K.Q. Wang, D. Zhang, C. Shi, “Adaptive Baseline Wander Removal in the Pulse Waveform,” *The proceedings of the 15th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2002)*, 2002, pp. 143-148. **(EI 02307034103)**
- **L.S. Xu**, K.Q. Wang, and D. Zhang, “Modern Researches on Pulse Waveform of TCPD,” *2002 International Conference on Communications Circuits and Systems and West Sino Expositions Proceedings*, pp. 1073-1078, June 29-July 1, 2002, Chengdu, China. **(ISTP)**
- **L.S. Xu**, K.Q. Wang, and D. Zhang, “Overview of Modern Traditional Chinese Pulse Diagnosis,” *Proceedings of the Fourth China-Japan-Korea Joint Symposium on Medical Informatics*, pp.110-114, Aug.2, 2002, Beijing, China.
- Wang, K.Q., **L.S. Xu**, D. Zhang, C. Shi, “TCPD Based Pulse Monitoring and Analyzing,” *Proceedings of the International Conference on Machine Learning and Cybernetics*, 4-5 Nov. 2002, vol. 3, pp. 1366 -1370. **(EI 03127405793)**
- **L.S. Xu**, *et al.*, “The Research on the Modern Computerized Traditional Chinese Pulse Diagnosis,” *Proceedings of 6<sup>th</sup> National Conference of Integrated Medicine*, Xiamen, 2002. (In Chinese)

## Research Projects

- ◆ “**Design of portable analyzer of power quality**” supported by Northeast Power Industry Management Bureau (Period: 1998-1999);
- ◆ “**Teaching experiment platform**” supported by Civil Aviation University of China (Period: 1998-1999);
- ◆ “**Design of simulator with six degrees**” supported by China State Shipbuilding Corporation (Period: 1999-2001);
- ◆ “**Investigation on the computerized traditional Chinese medicine**” supported by the Multidiscipline Scientific Research Foundation of Harbin Institute of Technology (Grant No. HIT.MD2001.36; Period: 2001-2003);
- ◆ “**Modeling and analysis of the syndromes in traditional Chinese medicine based on biometrics technology**” supported by the National Science Foundation of China (Grant No. 90209020; Period: 2003-2005);
- ◆ “**Biomedical image processing and human body based diagnosis**” funded by the National

Science Foundation of China (Grant No.1.42.37.A446; Period: 2003-2004);

- ◆ **“Pulse detecting system using multi-sensor technology”** funded by the Department of Computing of the Hong Kong Polytechnic University (Grant No.4.61.37.Z07R; Period: 2004-2005);
- ◆ **“Investigation on the computerized traditional Chinese medicine based on biometrics technology”** funded by PhD program foundation of the Ministry of Education of China (Grant No. 20040213017; Period: 2004-2007);
- ◆ **“Study on RF radiation effect and signal efficiency of wireless medical devices”** supported by Shun Hing Institute of Advanced Engineering, CUHK (Period: 2006-2007).
- ◆ **“Development of an efficient locomotion mechanism for wireless active capsule endoscope”** supported by Shun Hing Institute of Advanced Engineering, CUHK (Period: 2008-2009).

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If you need any further information, please notify me.