# Xi Li

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## EDUCATION

- Ph.D. major in Electrical Engineering and minor in Aerospace Engineering, University of Florida. May 2003
  **Dissertation:** Acoustic Proximity Ranging and Its Applications to Cavity Thickness Monitoring.
  **Advisors:** Prof. Jian Li and Prof. Mark Sheplak
- Ph.D. Electronic Engineering, Nanjing University of Science and Technology, China, July 1999
  **Dissertation:** Inverse Synthetic Aperture Radar Imaging of Non-cooperative Moving Targets.
  **Advisor:** Prof. Guosui Liu
- B.Sc. Electronic Engineering, Nanjing University of Science and Technology, China, July 1995

## PROFESSIONAL EXPERIENCE

- Postdoctoral Associate, University of Florida, 05/2003 - present. Have been working in the following areas:
  - Landmine imaging and detection by ground penetrating radar (GPR)
  - Robust array beamforming
- Research Assistant, University of Florida, 05/2000 - 05/2003. Worked in the following areas:
  - Real-time acoustic proximity ranging system design
  - Time delay estimation
  - Signal processing for GPR used in highway pavement profiling
  - Signal processing for optical shear stress micro-electro-mechanic systems (MEMS) sensors
  - Acoustic source location by MEMS acoustic array
- Research Assistant, Nanjing University of Science and Technology, 09/1995 - 05/2000. Worked in the following areas:
  - Synthetic aperture radar (SAR)/Inverse synthetic aperture radar (ISAR) imaging
  - Noise radar system design
  - Time-frequency analysis

## RESEARCH INTERESTS

- **Signal processing theory.** Specifically, estimation and detection theory, high resolution spectral estimation, time delay estimation, data measurement and analysis.
- **Proximity sensing.** Specifically, acoustic proximity ranging, multi-echo cancellation, acoustic source localization, robust array beamforming, nondestructive testing (NDT) systems, signal processing for MEMS transducers.
- **Radar/Sonar system.** Specifically, SAR/ISAR imaging techniques, system design and simulation, signal processing for GPR.

## TECHNICAL SKILLS

- Computer language: Matlab, C, C++, HTML
- Operation systems: UNIX, Windows NT/2000

- Data acquisition system: VXI

## PUBLICATIONS

### A. Peer-Reviewed Journal Papers:

1. Li, X., Wu, R., Rasmi, S., Li, J., Cattafesta, L., Sheplak, M., "Acoustic Proximity Ranging in the Presence of Secondary Echoes," *IEEE Transactions on Instrumentation and Measurement*, vol. 52, no. 5, October 2003, pp 1593-1605.

2. Li, X., Wu, R., Rasmi, S., Li, J., Cattafesta, L., Sheplak, M., "An Acoustic Proximity Ranging System for Monitoring the Cavity Thickness," *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 50, no. 7, July 2003, pp 898-910.

3. Wu, R., Li, X., Li, J., "Continuous Pavement Profiling with Ground Penetrating Radar," *IEE Proceedings F: Radar, Sonar, and Navigation*, vol. 149, no. 2, August 2002, pp 183-194.

4. Li, X., Wu, R., Sheplak, M., Li, J., "Multifrequency CW-Based Time-Delay Estimation for Proximity Ultrasonic Sensors," *IEE Proceedings F: Radar, Sonar, and Navigation*, vol. 149, no. 2, April 2002, pp 53-59.

5. Li, X., Larsson, E., Sheplak, M., Li, J., "Phase-Shift-Based Time Delay Estimators for Proximity Acoustic Sensors," *IEEE Journal of Oceanic Engineering*, vol. 27, no. 1, January 2002, pp 47-56.

6. Li, X., Liu, G., Ni, J., "Autofocusing of ISAR Images Based on Entropy Minimization," *IEEE Transactions on Aerospace and Electronic Systems*, vol. 35, no. 4, October 1999, pp 1240-1252.

7. Li, X., Gu, H., Liu, G., "A Method for Estimating the Rotation Angle of ISAR Image," *Tien Tzu Hsueh Pao/Acta Electronica Sinica* (in Chinese), vol. 28, no. 6, June 2000, pp 44-47.

8. Li, X., Liu, G., Shan, R., Ni, J., "Rotational Motion Compensation of the Target Moving Uniformly Rectilinearly Based on Entropy Principle," *Journal of Electronics* (in Chinese), vol. 22, no. 2, March 2000, pp 265-273.

9. Li, X., Ni, J., Liu, G., "Phase Compensation Using Image Cost Function," *Journal of Electronics* (in Chinese), vol. 22, no. 2, March 2000, pp 279-289.

10. Gu, H., Li, X., Shang, W., Su, W., Liu, G., "A New Approach of Periodic Square-Wave Interruption to Solution of the Leakage of CW Radar," *Tien Tzu Hsueh Pao/Acta Electronica Sinica* (in Chinese), vol. 26, no. 12, December 1998, pp 7-11.

11. Li, X., Ni, J., Liu, G., "A New Approach to Improve ISAR Image Quality," *Tien Tzu Hsueh Pao/Acta Electronica Sinica* (in Chinese), vol. 28, no. 2, February 2000, pp 139-141.

12. Li, X., Liu, G., Shan, R., Ni, J., "Study of Hybrid SAR-ISAR Imaging of Ships," *Modern Radar* (in Chinese), vol. 20, no. 4, August 1998, pp 18-25.

13. Li, X., Liu, G., Chen, X., Li, Y., "Optimal Tilted Gaussian Kernel Design Using Expectation Maximization Algorithm," *Tien Tzu Hsueh Pao/Acta Electronica Sinica* (in Chinese), vol. 26, no. 6, June 1998, pp 94-97.

### B. Conference Papers:

1. Li, X., Li, J., Sheplak, M., "CW-Based Proximity Distance Measurement by Ultrasonic Sensors," 142nd Meeting of the Acoustic Society of America, Fort Lauderdale, FL, 2001. *The Journal of the Acoustical Society of America*, Vol 110, Issue 5, November 2001, Page 2765.

2. Chandrasekaran, V., Li, X., Nishida, T., Cattafesta, L. N., Li, J., Sheplak, M., "Thermoelastically Actuated MEMS Ultrasonic Transducer," 142nd Meeting of the Acoustical Society of America, Fort Lauderdale, FL, 2001. *The Journal of the Acoustical Society of America*, Vol 110, Issue 5, November 2001, Page 2646.

3. Li, X., Sun, H., Gu, H., Su, W., Liu, G., "A New Kind of ISAR Autofocusing Technique Based on Entropy Criteria," Proceedings of 5th International Conference on Signal Processing, 2000. WCCC-ICSP 2000, Vol 3, pp 1806-1809.

4. Gu, H., Liu, G., Zhu, X., Su, W., Li, X., "A New Kind of Noise Radar-Random Binary Phase Coded CW Radar," IEEE National Radar Conference, Syracuse, NY, 1997, pp 202-206.

**HONORS/ACTIVITIES**

- President's recognition of outstanding student, University of Florida, 2003.
- Academic achievement award, University of Florida, 2001/2002.
- Outstanding graduate student award, Nanjing University of Science and Technology, China, 1996-1999.
- Outstanding researcher award, Ministry of Ordnance Industry, China, 1996.
- Member of IEEE.
- Reviewer for IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Signal Processing, IEEE Transactions on Instrumentation and Measurement, IEEE Signal Processing Letters, and IEE Proceedings: Radar, Sonar and Navigation.

**REFERENCES**

- Dr. Jian Li, Professor, Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL 32611
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- Dr. Mark Sheplak, Associate Professor, Department of Mechanical and Aerospace Engineering, University of Florida, Gainesville, FL 32611
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- Dr. Toshikazu Nishida, Associate Professor, Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL 32611
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