

## YUAN LE, P.H.D.

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### ***OBJECTIVE***

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Looking to do exciting, cutting-edge basic and applied research in MRI imaging.

### ***EDUCATION***

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**National Institutes of Health, Bethesda, MD** 2007 - onwards

- Postdoctoral Training

**Mayo Graduate School, Rochester, MN** 2001-2007

- PhD in Biomedical Engineering

**Shanghai Jiao Tong University, Shanghai, China** 1997-2000

- MS in Biomedical Engineering

• BS in Electrical Engineering 1993-1997

### ***RESEARCH EXPERIENCE***

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**Post-Doctoral Research** 2007- onwards

Project: Simultaneous myocardial perfusion and function measurement using DENSE sequence. ***Supervisor: Han Wen***, Ph.D.

- Used fluorescent microsphere technique as gold standard of blood flow measurement.
- Did Monte Carlo simulations to evaluate the effects of noise, temporal resolution and blood flow on blood flow measurement.
- Simulated effects of noise and registration on strain calculations.
- Processed patient and animal images using in-house software.
- Analyzed the data using statistical methods.

**PhD Research** 2001-2007

- Dissertation: Magnetic Resonance Elastography (MRE) Guided Thermal Treatment of Cancer. ***Advisor: Joel P. Felmlee***, Ph.D.

- Optimized 1D MR elastography method, including Mont Carlo simulations of noise effect on the displacement measurement in MRE using different motion sensitizing gradient shapes; partial volume effect study with different 2D-selective beam profiles.
- Compared displacement measurement using 1D and 2D MRE techniques and performed reliability study of displacement measurement in bovine gel and *ex-vivo* tissue.
- Developed simultaneous temperature and motion measurement technique using MRE, by extracting this information from the phase images of the same data set.
- Studied the effects of pulsed focused ultrasound (PFUS) on elevation of tissue temperature and change in tissue stiffness during the formation of coagulation in *ex-vivo* tissue and *in-vivo* nude mice xenopants.

#### **MS Research**

1997-2000

- Project: ECG signal and ultrasound image compression algorithm. *Advisor: Tiange Zhuang.*
- Compared different image compression algorithms like digital cosine transform, wavelet transform, vector quantization, several segmented lossless methods, and the combination of them.

#### ***TECHNICAL SKILLS***

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- Microsphere blood flow measurement; TX151, agarose and bovine gel making; focused ultrasound ablation on animals; and cardiac perfusion and motion MR imaging.
  - Computer programming of imaging processing algorithms and simulations using C, MATLAB (including SimuLink) and IDL.
  - Siemens training of IDEA sequence programming finished. Also know a little about EPIC.
  - Usually use JMP for statistics analysis.

#### ***ORIGINAL ARTICLES IN PEER REVIEWED JOURNALS***

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1. **Le Y.**, Stein A., Berry C., Kellman P., Bennett C., Taylor J., Lucas K., Kopace R., Ched'Hotel C., Lorenz C. H., Croisille P., and Wen H. Simultaneous Myocardial Strain

and Dark-Blood Perfusion Imaging Using a Displacement-Encoded MRI Pulse Sequence. *Submitted to Magn Reson Med.*

2. **Le Y.**, Glaser K. J., Rouviere O., Ehman R. L., Felmlee J. P. Feasibility of Simultaneous Temperature and Tissue Stiffness Detection by MRE. *Magnetic Resonance in Medicine*, 2006, Volume 55(3): 700-705.
3. **Le Y.**, Glaser K. J., Rouviere O., Gorny K. R., Chen S., Manduca A., Ehman R. L., Felmlee J. P. Preliminary assessment of one-dimensional MR elastography for use in monitoring focused ultrasound therapy. *Phys Med Biol* 2007, Volume 52(19): 5909-5919.
4. Rouvière O., Reynolds C., Hulshizer T., Rossman P., **Le Y.**, Felmlee J. P., Ehman R. L. MR Histological Correlation: A Method For Cutting Specimens Along The Imaging Plane In Animal or Ex Vivo Experiments. *J Magn Reson Imaging* 2006, Volume 23(1): 60-9.
5. Rouvière O., Reynolds C, **Le Y.**, Lai J., Roberts L. R., Felmlee J. P., Ehman R. L. Fiducial Markers For MR Histological Correlation In Ex Vivo Or Short-Term In Vivo Animal Experiments: A Screening Study. *J Magn Reson Imaging* 2006, Volume 23(1): 50-9.

### ***CONFERENCE PROCEEDINGS***

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- a. **Le Y.**, Kellman P., Taylor J., Bennett E., Lucas K., Chefd'Hotel C., Lorenz C. H., Croisille P., Wen H. Simultaneous Myocardial Perfusion and Strain Imaging with Displacement-encoded MRI. *Proc. RSNA*, 2008: p382.
  - b. Lin A. P., Bennett E., **Le Y.**, Fraser S., and Wen H. Single-Shot DENSE MRI of the Carotid Arteries. *Proc. Intl. Soc. Mag. Reson. Med.* 2008: p2846.
  - c. **Le Y.**, Kellman P., Bennett E., Lin A., Chefd'Hotel C., Lorenz C. H., Wen H, Free-Breathing Single-Shot Dense Myocardial Strain Imaging Using Deformable Registration. *Journal of Cardiovascular Magnetic Resonance* 2008, Volume 10 (Suppl 1): A207.
  - d. **Le Y.**, Kellman P., Taylor J., Bennett, E, Lucas K., Chefd'Hotel C., Lorenz C. H., Wen H., Simultaneous Myocardial First-pass Perfusion and Strain Imaging with Dense. *Journal of Cardiovascular Magnetic Resonance* 2008, Volume 10 (Suppl 1): A96.
  - e. Primak S., **Le Y.**, Lai J., Roberts L., Reynolds C., Rossman P., Felmlee J. P. Pilot Study Correlating Tissue Stiffness and Gross Pathology of MRgFUS Thermal Lesions in Human Liver Cancer Xenoplant Tissue. *Proc. Intl. Soc. Mag. Reson. Med.* 2006: p1432.
  - f. **Le Y.**, Primak S. V., Glaser K. J., Manduca A. , Ehman R. L., Felmlee J. P. Simultaneous

monitoring of MRgFUS temperature and tissue stiffness in real time. Proc. Intl. Soc. Mag. Reson. Med. 2006: p1431.

- g. **Le Y**, Rouviere O., Ehman R. L., Felmlee J. P. Simultaneous Temperature and Tissue Stiffness Detection by MR Elastography. AIP Conference Proceedings, 2006, Volume 829, p151-155.
- h. **Le Y**, Glaser K. J., Romano A. J., Manduca A., Lai J., Roberts L. R., Primak S. V., Ehman R. L., Felmlee J. P. Study of Shear Wave Displacement Change Measured by 1D MRE During Focused Ultrasound Treatment: Preliminary Study. AIP Conference Proceedings, 2006, Volume 829, p186-190.
- i. **Le Y.**, Glaser K. J., Felmlee J. P., Rouviere O., Manduca A., Chen, S. Ehman R. L. Rapid MR Elastography Methods during MRI guided Focused Ultrasound Surgery. Proc. Intl. Soc. Mag. Reson. Med. 2005: p155.
- j. Rouvière O. , Reynolds C., **Le Y.**, Lai J., Roberts L., Felmlee J. P., Ehman R. L. Fiducial Markers For MRI Pathological Correlation In Ex Vivo Or Short-Term In Vivo Animal Experiments: A Screening Study. Proc. Intl. Soc. Mag. Reson. Med. 2005: p2542.
- k. **Le Y.**, Kugel J., Ehman R. L. Shear Modulus Measurements Obtained by MR Elastography: Validation with Mechanical Testing. Proc. Intl. Soc. Mag. Reson. Med. 2003: p1102.

### ***PROFESSIONAL MEMBERSHIPS***

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- Student member of ISMRM.

### ***AWARDS RECEIVED***

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- Educational Stipend from ISMRM 2006, May, 2006, poster award nominee.
- Student award from 5<sup>th</sup> International Symposium on Therapeutic Ultrasound in Boston, MA; Oct. 2005; student presentation competition finalist.
- Educational Stipend from ISMRM, May, 2005.

### ***LANGUAGES***

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- English and Chinese (Mandarin).

## *COMMUNITY ACTIVITIES*

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- Toastmaster International club member, Competent Communicator.
- Board Member of Chinese Scholar Association at NIH from July, 2009 till now
- President of Chinese Student and Scholar Association at Mayo (MCSSA) during the time of July, 2005 – July, 2006.
- Participated in the activities of Rochester International Program in Minnesota as the president of MCSSA in 2005-2006.
- Volunteer in Rochester Chinese School as Chinese Painting teacher in the year of 2004-2005.