

Jesse Tong-pin Yen

Education

Duke University, Doctor of Philosophy, Biomedical Engineering, May 2003

Duke University, Bachelor of Science in Engineering, Biomedical/Electrical Engineering, May 1997

Experience

Associate Professor, Department of Biomedical Engineering, University of Southern California, July 2009-present

Invited Visiting Academic, University of Strathclyde, Centre for Ultrasonic Engineering, July-August 2012

Chief Science Officer, Viderics (low-cost, portable medical ultrasound imaging) 2011-present

Assistant Professor, Department of Biomedical Engineering, University of Southern California, July 2003-2009.

Core Project Leader, NIH Resource for Medical Ultrasonic Transducer Technology, Jan 2004-present.

Intern, Philips Medical Systems Ultrasound, May 1999 – Aug. 1999.

Intern, International Business Machines, May 1997 – Aug. 1997.

Refereed Publications

1. Nguyen M, Shin J, **Yen JT**, Harmonic imaging with Fresnel beamforming in the presence of phase aberration, *Ultrasound in Medicine and Biology*, 40, 2488-2498, 2014.
2. **Yen JT**, Beamforming of sound from two-dimensional arrays using spatial matched filters, *J. Acoust. Soc. Am.* 134, 3697-3704, 2013.
3. Nguyen M, **Yen JT**, Performance improvement of Fresnel beamforming using dual apodization with cross-correlation, *IEEE Trans. Ultras. Ferro. and Freq. Control*, 60, 451-462, 2013.

4. Shin J, **Yen JT**, Effects of dual-apodization on tissue harmonic and pulse inversion harmonic imaging in the presence of phase aberration, *IEEE Trans. Ultras. Ferro. and Freq. Control*, 60, 643-649, 2013.
5. Mung J, Huang G, Moos J, **Yen JT**, Weaver F, Stereotactic endovascular aortic navigation with a novel ultrasonic-based 3D localization system, *Journal of Vascular Surgery, J Vasc Sug* 57(6), 1637-1644, 2013.
6. Nguyen M and Yen JT, Harmonic imaging using Fresnel beamforming in the presence of phase aberration (accepted to *Ultrasound in Medicine and Biology*)
7. Shin, J and **Yen JT**, Synergistic enhancements of ultrasound image contrast with a combination of phase aberration correction and dual apodization with cross-correlation, *IEEE Trans. Ultras. Ferro. and Freq. Control* 59, 2089-2101, 2012.
8. Chen Y, Nguyen M, **Yen JT**, A 5-MHz cylindrical dual-layer transducer array for 3-D transrectal ultrasound imaging, *Ultrasonic Imaging*, 24, 181-195, 2012.
9. Hu CH, Zhang L, Cannata JM, **Yen JT**, Shung KK, Development of a 64 channel ultrasonic high frequency linear array imaging system, *Ultrasonics* 51, 8, 953-959, 2011.
10. Mung J, Han S, and **Yen JT**, Design and in vitro evaluation of a real-time catheter localization system using time of flight measurements from seven 3.5 MHz single element ultrasound transducers towards abdominal aortic aneurysm procedures, *Ultrasonics*, 51, 6, 768-775, 2011.
11. Chen Y, Nguyen M, and **Yen JT**, 7.5 MHz dual-layer transducer for 3-D rectilinear imaging, *Ultrasonic Imaging*, 33, 3 205-216, 2011.
12. Nguyen MN, Mung JC, and **Yen JT**, Fresnel-based beamforming for low-cost portable ultrasound. *IEEE Trans. Ultras. Ferro. and Freq. Control* 56, 112-121, 2011.

13. Zhang LQ, Xu XC, Hu CH, Sun L, **Yen JT**, Cannata JM, Shung KK, A high-frequency, high frame rate duplex ultrasound linear array imaging system for small animal imaging. *IEEE Trans. Ultras. Ferro. and Freq. Control* 57, 1548-1557, 2010.
14. Bond AE, Weaver FA, Mung J, Han S, Fullerton D, **Yen JT**, The influence of stents on the performance of an ultrasonic navigation system for endovascular procedures, *Journal of Vascular Surgery*, 50, 1143-1148, 2009.
15. Bitton R, Zemp R, **Yen JT**, Wang LV, Shung KK, A 3-D high-frequency array based 16 channel photoacoustic microscopy system for in vivo microvascular imaging, *IEEE Trans. On Medical Imaging*, 28, 1190-1197, 2009.
16. Awad SA and **Yen JT**, 3-D spatial compounding using a row-column array, *Ultrasonic Imaging*, 31(2), 120-130, 2009.
17. Chang JH, Sun L, **Yen JT**, Shung KK, Low-cost high-speed back-end processing system for high-frequency ultrasound B-mode imaging, *IEEE Trans. Ultras. Ferro. and Freq. Control* 56, 1490-1497, 2009.
18. Seo CH and **Yen JT**, A 256 x 256 2-D Row-column Array for 3-D Rectilinear Ultrasound, *IEEE Trans. Ultras. Ferro. and Freq. Control* 56, 837-847, 2009.
19. Seo CH and **Yen JT**, Evaluating the robustness of dual apodization with cross-correlation *IEEE Trans. Ultras. Ferro. and Freq. Control*, 56, 291-202, 2009.
20. **Yen JT**, Seo CH, Awad SI, Jeong J Dual-layer transducer for 3-D Imaging, *IEEE Trans. Ultras. Ferro. and Freq. Control* 56, 204-212, 2009.
21. Seo CH and **Yen JT**, Sidelobe suppression in ultrasound imaging using dual apodization with cross-correlation, *IEEE Trans. Ultras. Ferro. and Freq. Control*, 55, 2198-2210, 2008.

22. Chang JH, **Yen JT**, Sun L, Shung KK, A high-speed digital scan converter for high-frequency ultrasound sector scanners, *Ultrasonics*, 48, 444-452, 2008
23. Xu X, Sun L, Cannata JM, **Yen JT**, and Shung KK, High-frequency Ultrasound Doppler System for Biomedical Applications with a 30 MHz linear array, *Ultrasound in Medicine and Biology*, 34,638-646, 2008.
24. Awad SI and **Yen JT**, 3-D Strain Imaging Using a Rectilinear 2-D Array, *Ultrasonic Imaging*, 29, 220-230, 2007.
25. Chang JH, **Yen JT**, Shung KK, A novel envelope detector for high frame rate high frequency ultrasound imaging, *IEEE Trans. Ultras. Ferro. and Freq. Control*, 2007 54:1792-1801.
26. Sun L, Richard WD, Cannata JM, Feng C, Johnson JA, **Yen JT**, Shung KK, A high frame rate high frequency ultrasonic system for cardiac imaging in small animals, *IEEE Trans. Ultras. Ferro. and Freq. Control*, 2007 54:1648-1655.
27. Xu XC, **Yen JT**, Shung KK, A low-cost bipolar pulse generator for high-frequency ultrasound applications. *IEEE Trans. Ultras. Ferro. and Freq. Control*, 54:443-447, 2007.
28. Hu CH, Liu RB, Zhou QF, **Yen JT**, Shung KK, Coded excitation using biphas-coded pulse with mismatched filters for high-frequency ultrasound imaging. *Ultrasonics* 44 (3): 330-336, 2006.
29. **Yen JT**, Daher NM. 2-D array for 3-D Ultrasound Imaging Using Synthetic Aperture Techniques. *IEEE Trans. Ultras. Ferro. And Freq. Control* 53:912-924, 2006.
30. Hu CH, Xu X, Cannata JM, **Yen JT**, Shung KK. Development of a Real-time High Frequency Ultrasound Digital Beamformer for High Frequency Linear Array Transducers. *IEEE Trans. Ultras. Ferro. And Freq. Control* 53:309-316, 2006.

31. **Yen JT**, Smith SW. Real-time 3-D ultrasound using receive mode multiplexing, IEEE Trans. Ultras. Ferro. And Freq. Control 51:216-226, 2004.
32. Pua, EC, **Yen, JT** and Smith SW. Real Time Cylindrical Curvilinear 3-D Ultrasound Imaging. Ultrasonic Imaging 25:109-121, 2003.
33. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging using a periodic array, Ultrasound in Med. & Biol. 28:923-931, 2002.
34. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging, IEEE Trans. Ultras. Ferro. And Freq. Control 49:114-124, 2002.
35. **Yen JT**, Steinberg JP, Smith SW. Sparse 2-D array design for real time rectilinear volumetric imaging, IEEE Trans. Ultras. Ferro. And Freq. Control;47:93-110, 2000.
36. Olivier LA, **Yen JT**, Reichert WM, and Truskey GA. Short-term cell/substrate contact dynamics of subconfluent endothelial cells following exposure to laminar flow. Biotechnol. Prog. Vol. 15, 33-42, 1999.

Book Chapter

Shung KK and **Yen JT**, Array Transducers and Beamformers in Ultrasound Imaging and Therapy, Fenster A and Laceyfield J ed.

Manuscripts in Preparation, or Revision

1. Chen Y and Yen JT, Improved beamforming by spatial matched filtering for high frame-rate ultrasound imaging
2. Chen Y and Yen JT, Enhanced image contrast using dual apodization with spatial matched filters.
3. Shin JS and Yen JT, Multi-apodization with cross-correlation for cardiac imaging: In Vivo Results

4. Shin JS and Yen JT, Phase apodization with cross-correlation for abdominal imaging
5. Yang ML and Yen JT, Improved contrast for high frame rate imaging using coherent compounding combined with spatial matched filtering.
6. Yen JT, Tarnoff HT, Proof-of-concept demonstration of a Fresnel-based beamformer.

Grants

12/1/2012-12/31/2015 On-demand hemodynamics with ultrasound imaging in critically ill patients

Total costs: \$200,000

Wallace Coulter Translational Research Partnership Program

Contributions: PI - Yen

12/1/2012-12/31/2015 Non-invasive therapeutic device for the treatment of drug-related hypertension

Total costs:\$50,000

Wallace Coulter Translational Research Partnership Program

Contributions: PI - Yen

9/1/2006-8/31/2016 A Resource on Medical Ultrasonic Transducer Technology

Total costs: \$4,599,583

National Institutes of Health

Contributions: Core Project Leader (5% effort), PI – Shung

Completed Grants

7/1/2011-6/30/2014 R21CA149543 High Contrast Ultrasound Imaging

National Institutes of Health

Total costs: \$423,041

Contributions: PI – Yen (20% effort)

9/25/2008-7/3/2012 R01CA116379-01A1 3-D Transrectal Ultrasound with 2-D Arrays

National Institutes of Health

Total costs: \$742,854

Contributions: PI - Yen (20% effort)

8/1/2007-1/31/2010 Ultrasound Transducers for Near-Field 3-D Imaging

Wallace H. Coulter Foundation Early Career Translational Research Award

Total costs: \$236,000

Contributions: PI - Yen(20% effort)

10/15/2007-12/31/2009 Use of Ultrasound for Image-Guided Surgery

USC James H. Zumberge Interdisciplinary Grant

Total costs: \$50,000

Contributions: Co-PI with (Liu and Towfigh)

5/1/2008-6/30/2010 A Breathing Circuit-Embedded Acoustic Reflectometer

Total costs: \$32,557

Contributions: PI -Yen

5/2005-4/2008 R21CA112174-01 New Scanning Methods for 3-D Breast Ultrasound

Total costs: \$361,112.

Contributions: PI (20% effort)

2/2005-1/2008 1 R01 HL079976-01

Development of A High Frame Rate Ultrasonic System for Cardiac Imaging in Small Animals

Total costs: \$536,251

Contributions: Co-Investigator (10% effort) PI- Shung

7/2003 – 8/2005 Startup funds from USC Viterbi School of Engineering \$125,000

7/2003-8/2005 Startup funds from Powell Foundation \$75,000

Patents

1. **Yen JT**, Mung J, and Nguyen M, Fresnel-based beamforming for ultrasonic arrays, 8,523,774, 2013, Chinese Patent approved in 2014.
2. **Yen JT**, Koffler R, Tarnoff H, Wittman M, System and Method for Ultrasound Diagnostics (submitted for conversion Aug. 2013).
3. **Yen JT** and Seo CH, Novel Apodization Technique for Clutter Suppression in Ultrasound Imaging, 8,254,654, 2012.
4. Smith SW, Light ED, **Yen JT**, and Pua EC. Methods and devices for ultrasound scanning by moving apertures of cylindrical ultrasound transducer arrays in two dimensions. 6,641,534, 2003

Invited Presentations

1. 3-D Rectilinear and Curvilinear ultrasound with 2-D arrays, University of California Bioengineering Symposium, June 2006.
2. 2-D arrays for 3-D imaging of near-field targets, Pan-American Health Care Exchanges, February 2007.
3. Recent advances in 3-D rectilinear ultrasound, University of California San Diego, April 2008.
4. Dual apodization with cross-correlation in the presence of phase aberration and noise, IEEE EMBC, Vancouver, Canada, August 2008.
5. Recent developments of high frequency array imaging systems and signal processing, 6th International Conference on Ultrasonic Biomedical Microscanning, September 2008.
6. An ultrasound navigation system for minimally invasive repair of abdominal aortic aneurysms, Medtronic, Santa Rosa, CA, April 2009.
7. Recent progress on 3-D ultrasound of near-field targets, University of Michigan, November 2009.
8. Recent progress on 3-D ultrasound of near-field targets, Michigan State University, November 2009.
9. Transducers for 3-D Imaging: A Review, 35th International Symposium on Ultrasonic Imaging and Tissue Characterization, 2010.

10. Biomedical Ultrasound at the University of Southern California, University of Strathclyde, Centre for Ultrasonic Engineering, Glasgow, Scotland, 2012
11. Transducers for 3-D Imaging, IEEE EMBC, 2012, San Diego, California
12. Array Transducers combined with spatial matched filtering for high frame rate B-mode Imaging, Ultrasound Transducer Engineering Conference, 2014.

Conference Proceedings and Abstracts

1. Shin JS, Chen Y, Nguyen M, **Yen JT**, Robust ultrasonic reverberation clutter suppression using multi-apodization with cross-correlation, 2014 IEEE Ultrasonics Symposium.
2. A kerfless dual-layer transducer combined with beamforming for spatial matched filtering for high frame rate ultrasound imaging, 2014 IEEE Ultrasonics Symposium.
3. Chen and **Yen JT**, Image contrast enhancement using dual apodization with cross-correlation and beamforming by spatial match filtering, 2013 IEEE Ultrasonics Symposium.
4. Shin J and **Yen JT**, Clutter suppression using phase apodization with cross-correlation in ultrasound imaging, 2013 IEEE Ultrasonics Symposium.
5. Shin J and **Yen JT**, Performance evaluation of an integrated ultrasound image contrast enhancement technique for cardiac imaging, 34th Annual International Conference of the IEEE Engineering in Medicine and Biology, 2012
6. Shin J and **Yen JT**, A new approach to enhance ultrasound image contrast: an ex-vivo validation study, 2012 BMES Annual Meeting.
7. Kang BJ, Park J, Kim HH, **Yen JT**, Shung KK, Dual Gate Pulsed Wave Doppler Imaging for Investigating Cardiovascular Dysfunctions, 2012 IEEE Ultrasonics Symposium.
8. Chen Y and **Yen JT**, Beamforming by spatial filtering for high frame-rate ultrasound imaging, 2012 IEEE EMBC.

9. Chen Y, Nguyen M, and **Yen JT**, Real-time rectilinear volumetric acquisition with a 7.5 MHz dual-layer array transducer, 2011 IEEE Ultrasonics Symposium.
10. Shin JS and **Yen JT**, Improved image quality using phase aberration correction and dual apodization with cross-correlation, 2011 IEEE Ultrasonics Symposium.
11. Nguyen M, Shin JS, and **Yen JT**, Fresnel beamforming and dual apodization with cross-correlation for curvilinear arrays in low-cost portable ultrasound systems. 2011 IEEE Ultrasonics Symposium.
12. Mung J, Moos J, Weaver F, **Yen JT**, Real-time 3D catheter localization system using ultrasound: recent in vivo results towards endovascular abdominal aortic aneurysm repair, 2011 IEEE Ultrasonics Symposium.
13. Design of a 64 channel analog receive beamformer for high frequency linear arrays, Zhang LQ, Hu CH, **Yen JT**, Shung KK, 2010 IEEE Ultrasonics Symposium.
14. Fundamental limits and simulations on time difference of arrival source localization using ultrasound signals, Mung JC, and **Yen JT**, 2010 IEEE Ultrasonics Symposium.
15. Recent results from dual-layer array transducers for 3-D imaging, Chen Y, Nguyen MN, and **Yen JT**, 2010 IEEE Ultrasonics Symposium.
16. Nguyen M, Mung J, and **Yen JT**, Fresnel beamforming for compact portable ultrasound array system, 2009 IEEE Ultrasonics Symposium.
17. Mung J, Han S, Weaver F, and **Yen JT**, Time of flight and FMCW Catheter Localization, 2009 IEEE Ultrasonics Symposium.

18. Mung J, Han S, Fullerton D, Bond A, Liu B, Weaver F, and **Yen JT**, An ultrasonic navigation system for endovascular aortic repair, Medicine Meets Virtual Reality Medical Education Conference, Long Beach, CA, 2009.
19. Seo CH and **Yen JT**, The effect of different cross-correlation methods on the dual apodization with cross-correlation algorithm, 2008 IEEE Ultrasonics Symposium
20. Seo CH and **Yen JT**, Recent results using a 256 x 256 2-D array transducer for 3-D rectilinear imaging, 2008 IEEE Ultrasonics Symposium.
21. **Yen JT**, Seo CH, Awad S, Jeong J, A PZT-P[VDF-TrFE] dual-layer transducer for 3-D rectilinear imaging, 2008 IEEE Ultrasonics Symposium.
22. Mung J, Han S, Fullerton D, Bond A, Towfigh S, Weaver F, **Yen JT**, Ultrasound-based aortic navigation system: preliminary data, AAA:STOP (Abdominal Aortic Aneurysms: Simple Treatment Or Prevention), Palo Alto, CA.
23. **Yen JT** and Seo CH, Dual apodization for Improved Contrast, Acoustics '08, Paris, France.
24. **Yen JT** and Seo CH, Dual apodization with cross-correlation in the presence of noise and phase aberration, IEEE Engineering in Medicine and Biology Conference, Vancouver, Canada.
25. **Yen JT** and Seo CH, Dual apodization with cross-correlation, 33rd International Symposium on Ultrasonic Imaging and Tissue Characterization, 2008.
26. **Yen JT**, Seo CH, Awad SI, and Jeong JS, A dual-layer transducer for 3-D near-field imaging, 33rd International Symposium on Ultrasonic Imaging and Tissue Characterization, 2008.
27. Seo CH and **Yen JT**, 256 x 256 2-D array transducer with row-column addressing for 3-D imaging. 2007 IEEE Ultrasonics Symposium Proceedings, 2381-2384.

28. Awad SI, Lye YL, **Yen JT**, 3-D Strain Imaging Using a Rectilinear 2-D Array: Preliminary Results. 2007 IEEE Ultrasonics Symposium Proceedings, 228-231.
29. Jeong JS, Seo CH, and **Yen JT**, Dual-Layer Transducer Array for 3-D Imaging. 2007 IEEE Ultrasonics Symposium Proceedings, 2371-2374.
30. Xu X, Zhang L, Sun L, **Yen JT**, Cannata JM, Shung KK, High-frequency Duplex Ultrasound Imaging System for Biomedical Applications Using a 30 MHz Linear Array. 2007 IEEE Ultrasonics Symposium Proceedings, 335-338.
31. Chang JH, **Yen JT**, Sun L, Shung KK, A Backend Processing System for High-Frequency High-Frame Rate Ultrasound B-mode Imaging. 2007 IEEE Ultrasonics Symposium Proceedings, 331-334.
32. Awad SI, Lye YL, **Yen JT**, Strain Imaging Using a Rectilinear 2-D Array: Preliminary Results. 2006 IEEE Ultrasonics Symposium Proceedings 1270-1273.
33. Seo CH, **Yen JT**, 64 x 64 2-D Array Transducer with Row-Column Addressing. 2006 IEEE Ultrasonics Symposium Proceedings 74-77.
33. Bitton R, Zemp R, Li ML, **Yen JT**, Wang LH, Shung KK, Photoacoustic microscopy with a 30 MHz Array and Receive System. 2006 IEEE Ultrasonics Symposium Proceedings 389-392.
34. Chang JH, **Yen JT**, Sun L, Shung KK, Implementation of high frame rate digital scan converter for high frequency ultrasound mechanical sector scanner. 2006 IEEE Ultrasonics Symposium Proceedings 2226-2229.
35. Hu CH, Liu R, Zhou Q, **Yen JT**, Shung KK, Mismatched-filter design for biphas-coded pulse for high frequency ultrasound imaging. 2006 IEEE Ultrasonics Symposium Proceedings 2222-2225.

36. Xu X, Zhou Q, Ameri H, Gottlieb EJ, Lai B, **Yen JT**, Cannata JM, Humayun MS, Shung KK, High-frequency pulsed-wave ultrasound doppler system for biomedical applications with PMN-PT needle transducer and 30 MHz linear array. 2006 IEEE Ultrasonics Symposium Proceedings 2234-2237.
37. Sun L, Feng C, Cannata JM, Johnson JA, **Yen JT**, Shung KK, Real-time high frame rate high frequency ultrasonic system for cardiac imaging in small animals. 2006 IEEE Ultrasonics Symposium Proceedings 2206-2209.
38. Sun L, Cannata JM, Johnson J, **Yen JT**, Feng C, Shung KK, Development of a high frame rate ultrasonic system for cardiac imaging in small animals. 2006 SPIE Medical Imaging, San Diego, CA vol. 6147.
39. Seo CH and **Yen JT**, Real-time Transrectal 3-D Ultrasound Using Synthetic Aperture 2006 SPIE Medical Imaging, San Diego, CA vol. 6147.
40. Xu XC, Hu CH, Sun L, Yen JT, Shung KK, High Frequency High Frame Ultrasound System for Small Animal Imaging with Linear Arrays. 2004 IEEE Ultrasonics Symposium Proceedings.
41. Daher N, **Yen JT**. Rectilinear 3-D Ultrasound Using Synthetic Aperture Techniques. 2004 IEEE Ultrasonics Symposium Proceedings 1270-1273.
42. Hu CH, **Yen JT**, Shung KK, Cao PJ, FPGA Based High Frequency Digital Beamformer. 2004 IEEE Ultrasonics Symposium Proceedings 1347-1350.
43. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging using 4:1 receive mode multiplexing. 2003 IEEE Ultrasonics Symposium Proceedings 1165-1170.
44. Pua EC, **Yen JT**, Smith SW. Real-time Cylindrical Curvilinear 3-D Ultrasound. 2003 IEEE Ultrasonics Symposium Proceedings 668-671.

45. **Yen JT**, Smith SW. Implementation of a 4:1 receive mode multiplexing system for real-time rectilinear volumetric imaging. 28th International Symposium on Ultrasonics and Tissue Characterization 2003.
46. Smith SW, Lee W, Light ED, **Yen JT**, Wolf P, Idriss S. Two Dimensional Arrays for 3-D Ultrasound Imaging. 2002 IEEE Ultrasonics Symposium Proceedings;2:1545-1553.
47. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging using receive mode multiplexing. 2002 U. S. Navy Workshop on Acoustic Transduction Materials and Devices.
48. **Yen JT**, Smith SW. Real-time curvilinear and improved rectilinear volumetric imaging. 2001 IEEE Ultrasonics Symposium Proceedings 2001;2:1117-1122.
49. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging. 2001 U. S. Navy Workshop on Acoustic Transduction Materials and Devices 2001.
50. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging. 2000 IEEE Ultrasonics Symposium Proceedings 2000;2:1199-1204.
51. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging. 2000 U. S. Navy Workshop on Acoustic Transduction Materials and Devices 2000.
52. **Yen JT**, Smith SW. Real-time rectilinear volumetric imaging. 1999 U. S. Navy Workshop on Acoustic Transduction Materials and Devices 1999.
53. **Yen JT**, Smith SW. Real-time rectilinear volumetric ultrasound imaging. 23rd International Symposium on Ultrasonic Imaging and Tissue Characterization 1998;20:42-43.

54. Olivier LA, Xiao Y, **Yen JT**, Reichert WM, and Truskey GA. Changes in endothelial cell contact area and tyrosine phosphorylation following exposure to flow. 1995 Annual Fall Meeting of the Biomedical Engineering Society 1995; 23:S-49.

Teaching Experience

1. Instructor, BME 513, Signal and Systems Analysis in Biomedical Engineering. University of Southern California. Course required for all BME graduate students covering signal and system classification, time domain analysis, Fourier Series, Fourier Transform, Laplace Transform, and Z Transform. Developed pre-recorded lectures and more active learning exercises in Spring 2011-2015. Class is taught using USC's Distance Education Network (den.usc.edu) (Fall 2003, '04, '05, Spring and Fall '06, Fall '07, Spring 2009-2015).

2. Instructor, BME 101, Introduction to Biomedical Engineering. Course covers engineering design, circuit analysis, mechanics, and cardiovascular system. Developed pre-recorded lectures and additional active learning exercises in class in Fall 2011-Fall 2013. (Fall Semester, 2004-2008, 2010-2013, 2015).

3. Instructor, ENGR 102, Engineering Freshman Academy. Introduction to the profession of engineering. Ethical, political, and society consequences of engineering innovations and the impact of engineering on everyday life. (Fall 2008, 2010, 2012, 2013).

3. Head Teaching Assistant, Biomedical Electronics and Measurements I. Duke University. Duties included setting up the laboratory, instructing the other TAs on how to perform the lab, scheduled review sessions, proctored exams in addition to responsibilities listed below (Fall 1998 and Spring 1999).

4. Teaching Assistant, Biomedical Electronics and Measurements I. Duke University. Instructed students in a weekly lab sessions where duties included giving pre-lab lectures, holding review sessions and office hours, grading of exams, labs, reports, and homework (Spring 1998)

5. Guest Lecturer: BME 425 (2013,2014), BME 525 (2013-2015), BME 535 (2003-present), BME 536 (2003-present).

Awards and Honors

Front Cover Contribution in IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control, February 2004 issue.

Front Cover Contribution in IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control, December 2003 issue.

Student paper finalist IEEE Ultrasonics symposium 2003.

Cum laude – Duke University 1997.

Ph.D. Students (Primary Advisor)

2015-present	Mark Yang: Spatial matched filtering of ultrasound images
2012-2014	Yu Chen: Composite dual-layer transducers
2010-2014	Jun Shin: Novel beamforming methods, currently Member Research Staff at Philips
2008-2013	Man Nguyen: Portable ultrasound, currently Biomedical Ultrasound Scientist at Philips
2008- 2014	Yuling Chen: 3-D prostate ultrasound, currently Staff Scientist at ZONARE Medical Systems, Mountain View, CA
2005-2012	Jay Mung: Ultrasonic Navigation system for Minimally Invasive Surgery currently Biomedical Engineer at Apple
2005-2008	Chi Hyung Seo: Improved contrast in ultrasound imaging, currently Systems Engineer at Siemens Ultrasound, Issaquah, WA.
2004-2009	Samer Awad: Elasticity Imaging using 3-D Ultrasound, currently Assistant Professor at Hashemite University, Jordan

Ph.D. Students (Co-Advisor)

2004-2007	Rachel Bitton: Receive Electronics for Photoacoustic Array
2004-2006	Antton Hu: FPGA-based High Frequency Digital Beamformer
2004-2007	Shean Xu: High Frequency Analog Beamformer

2004-2007	Jin Ho Chang: Scan Converter for High Frequency High Frame Rate Ultrasound System
2006-2010	Lequan Zhang, High Frequency Duplex Ultrasound Imaging Using Analog Beamformers
2011-2012	Fan Zheng, High Frequency Phased Array Systems
2011-present	Bong Jin Kang, High Frequency Linear Array Digital Systems
2012-present	Yang Li, Dual Frequency Intravascular Imaging

MS and Undergraduates

2004-2007	Yan Lin Lye: Ultrasound Phantoms for 3-D Elasticity Imaging
2005-2008	Daniel Fullerton: Transducers for 3-D Ultrasound
2008	Ross Naylor: Ultrasound Imaging With Magnetic Nanoparticles
2010-2011	Anugraha Rajendran: Ultrasound GPS systems
2013-2014	Kevin Lu: Focusing using electroactive polymers
2014-present	Aashka Damani: Focusing using electroactive polymers
2014-2015	Derek Sun: Development of ultrasound-based hemodynamic monitor
2014-2015	Stephen Lai: Development of ultrasound-based hemodynamic monitor
2015-present	Mark Miller: Ultrasound stimulation of the baroreflex
2015-present	Zahra Surani: Assessment of neuromuscular block
2015	Cody Lim: Speckle tracking of IVUS images
2015	Tilden Chima: Hydrophone testing of ultrasound-based hemodynamic monitor
2015	Catherine Belock: Doppler ultrasound using a Fresnel-based beamformer

Consulting

2013 Sonivate Medical
2010 Edwards Life Sciences
2010-2011 B&B Medical Surgical

Service

2004-2007 USC Graduation Marshal

2004-2007 BME department Grodins Symposium poster judge
2004-2012, 2014-2015 BME Ph.D. Program Screening Exam Committee
2005-2006 Faculty Advisor for IEEE-UFFC Student Chapter
2005-2013 Reviewer for IEEE-UFFC journal
2005-2013, 2015 Presidential and Trustee Scholarship Interviewer
2005-2015 Explore USC
2005 Reviewer for USC General Clinical Research Center
2005 Ad hoc reviewer for NIH BMIT Study Section
2006 Session Chair SPIE Medical Imaging – Ultrasound Imaging and Signal Processing
2006 -2007, 2009, 2011-2014 BME PhD Admissions Committee
2006-2007 Alternate Reviewer - USC Institutional Review Board – University Park Campus
2006 Reviewer for IEEE Sensors journal
2007 Reviewer for IEEE/ASME Journal of Microelectromechanical Systems
2007 BMES – Student Events Coordinator – responsible for recruiting and organizing shifts for
~70 student volunteers, organized undergraduate research sessions for ~100
platform and poster presentations.
2007 BMES – Chair Ultrasound Imaging Session
2007-2010 – Advisor - Engineering Honors Program
2008, 2011-2013 – Chair - BME Ph.D. admission committee
2008 – Reviewer for USC Zumberge Individual Research Award
2008 – 2011 BME department Grodins Symposium platform judge
2008 –present Member -Division of Engineering Education
2008-present Reviewer for Ultrasound in Medicine and Biology Journal
2010-2012 Faculty advisor BMEStart and BMEIdea undergraduate design team
2011-2012 IEEE EMBC Finance Chair
2012 IEEE EMBC Invited Sessions organizer – Ultrasound Transducers for Biomedical
Applications and Advanced Ultrasound Imaging and Evaluation
2013-present , Associate Editor IEEE Transactions on Ultrasonics Ferroelectrics Frequency
Control
2014-present, Associate Editor Ultrasonic Imaging Journal
2013 Ad hoc reviewer for NIH BMIT Study Section

2013-2014 Reviewer for IEEE Transactions on Signal Processing
2013 Reviewer for IEEE/ASME Journal of Microelectromechanical Systems
2013-2014 Reviewer for Optics Letters
2013-2014 Executive committee Division of Engineering Education
2013, 2015, Panelist for Applying to a PhD program.
2014-2015 Viterbi School of Engineering EFC committee member, Academic Environment
committee chair
2015, Viterbi School of Engineering EFC committee member, Academic Instruction Committee
2015-2016, Viterbi School of Engineering EFC committee member, Subcommittee on Effective
Technology Commercialization
2014 Reviewer for IEEE JMEMS
2015-2016, BME medical imaging faculty search committee member
2014 CET, panelist on flipped classroom
2014, Reviewer for CRC press
2014, Reviewer for Baxter Foundation
2014, BME department Merit Review Committee
2014, Reviewer for NIST
2015, Reviewer for ZonMw – The Netherlands Organization for Health Research and
Development
2015, Viterbi School of Engineering, School level research space committee
2015, Reviewer for IEEE Transactions on Biomedical Circuits and Systems
2015, Reviewer for Journal of the Acoustical Society of America
2015, Reviewer for Medical Physics