

# UNIVERSITY OF PENNSYLVANIA - SCHOOL OF MEDICINE

## Curriculum Vitae (Updated 4/28/2021)

**Name:** Yubing Tong

**Office Address:** Medical Image Processing Group  
Department of Radiology - University of Pennsylvania  
Goddard Laboratories Building - Sixth Floor  
3710 Hamilton Walk, Philadelphia, PA 19104-6021

**Cell Phone:** 215-803-8866

**Emails:** ybtong99@gmail.com/ yubing@penmedicine.upenn.edu

### Education:

1995-1999 B. Engg. Industrial automatic system - Shandong Jianzhu University, China.  
1999-2002 M.S. Pattern recognition & intelligent system - Wuyi University, China.  
2002-2006 Ph.D. Communication & information system - Beihang University, China.  
PhD dissertation "The research on image quality assessment and H.264 video coding technology"

### Appointments:

2018- Director of Operations & Senior Research Investigator  
Medical Image Processing Group (MIPG), Department of Radiology, University  
of Pennsylvania, U.S.A.

2016- 2018 Research Associate  
Medical Image Processing Group (MIPG), Department of Radiology, University  
of Pennsylvania, U.S.A.

2011-2016 Postdoctoral research fellow  
Medical Image Processing Group (MIPG), Department of Radiology, University  
of Pennsylvania, U.S.A.

2010-2010 Postdoctoral researcher  
Multimedia Information Modeling and Retrieval Group, Laboratoire  
d'Informatique de Grenoble (LIG) / Centre National de la Recherche Scientifique,  
Grenoble (CNRS - The French National Centre for Scientific Research), France.

2009-2009 Postdoctoral researcher  
Color Imaging Group, Hubert Curien Lab, Université Jean Monnet/Université de  
Lyon, ST Etienne, France.

2006-2008 Video software engineer, and Project manager  
Department of multimedia techniques, Arcsoft Inc. Shanghai, China.

**Board of advisor: (2018-2021)**

Quantitative Radiology Solutions (QRS), LLC.

**Awards:**

- 2015 UPenn Biomedicine Postdoctoral Program (BPP) Travel Award, University of Pennsylvania
- 2018 GPU Grant Program award, Nvidia
- 2020 **Russel A Hibbs best paper award**, 55<sup>th</sup> Annual Meeting of the Scoliosis Research Society (SRS).
- 2020 **Best paper award**, 14th International Congress on Early Onset Scoliosis (ICEOS).

**Mentoring experience** (as a Co-supervisor (with Prof. Jayaram K. Udupa at UPenn/MIPG group)):

- 2020- Ph.D Thesis reviewer
- 2016- Seven Postdoc in their research and (co-authored) publications
- 2016- Eight PhD students and five visiting scholars in their research and publications

**Project experience:**

1. R01HL150147, PIs: Udupa, Jayaram, Drew Torigian, Patrick Cahill  
Title: Virtual growing child 5-dimensional functional models for treating respiratory anomalies  
Time: 2020-2023  
Role: Investigator and major developer on program & algorithm developing for the novel quantitative thoracic dynamic MRI (QdMRI) approach on normal children and TIS patients
2. NIH 5R01 HL130468, PIs: Arens, Raanan, Udupa, Jayaram, Wootton, David  
Title: A computational biomechanical airway model for obese children at risk for OSAS  
Time: 2016-2021  
Role: Program & algorithm developer for 4D MR airway segmentation; optimal bio-marks algorithm for characterizing child patients with and without OSAS
3. NIH 1R21HL1244621, PI: Udupa, Jayaram  
Title: Dynamic MRI image analysis for studying thoracic insufficiency syndrome  
Time: 2015 – 2017  
Role: Program & algorithm developer 4D MR image construction; 4D lung segmentation approach
4. NSF STTR #1549509 PIs: Jayaram K Udupa, Joseph Camaratta  
STTR Phase I: Automated object contouring methods and software for head and neck radiotherapy planning  
Time: 1/15/2016-12/31/2016  
Role: Algorithm developer with publications of AAR techniques on upper airway, 4D image segmentation
5. NIH 5R01HL105212 PIs: Raanan Arens and Jayaram K. Udupa

Title: A structural & functional study of the upper airway in adolescent girls with PCOS

Time: 2011-2014

Role: Algorithm developer for image segmentation algorithm development on image processing and segmentation approaches with publication of 4D IRFC for upper airway segmentation

6. Quaero, a pan-European research program for developing multimedia, multilingual indexing and management tools which is co-founded by France and Germany government.  
Time: 2010-2011  
Role: Algorithm developer attending TRECVID at LIG, and designing incremental Multi-Classifer learning algorithm on Grid5000 for Large Scale Image Annotation.

#### **Grants (as PI):**

1. Nvidia GPU grant

**PI: Yubing Tong**

**Title:** Deep learning-based fat segmentation from chest CT images of lung transplant patients. 2018-2019.

2. ITMAT's Pilot Grant program for Maturation Human Biology

**PI: Yubing Tong**, Co-PIs: Drew Torigian (UPenn), Robert M. Campbell (CHOP)

**Title:** Development of deep-learning-based object segmentation on 4D MRI to understand changes in normal thoracic dynamics during childhood maturation. July 1, 2018-June 30, 2021 (\$100,000.00).

3. ITMAT's Pilot Grant program for Pilot Grant program for Translational Biomedical Imaging Center

**PI: Yubing Tong**, Co-PIs: Drew Torigian (UPenn), Patrick Cahill (CHOP)

**Title:** Development of a deep-learning-based automatic 4D MRI construction and segmentation system for studying thoracic insufficiency syndrome (TIS) March 1, 2019- February 28, 2021, (\$50,000.00).

4. INID – International Network for Image-based Diagnosis, INTPART project 309857

**PI: Yubing Tong**, with Lead PI: Faouzi Alaya Cheikh at Norwegian University of Science and Technology (NTNU), Norway

December 1, 2020 - December 1, 2023, (5,649,000 NOK)

#### **Memberships in Professional and Scientific Societies:**

Member, SPIE

Member, Radiological Society of North America (RSNA)

Member, Institute of Electrical and Electronic Engineers (IEEE)

#### **Tech Certificate:**

**NSF-PCI program: Automated Anatomy Recognition (AAR) team**

For completing all requirements of the Innovation Corps (I-Corps) Program, The University of Pennsylvania Innovation Site, **National Science Foundation**, Summer 2015.

- 1) **The project has hatched a company:** Quantitative Radiology Solutions (QRS), LLC. which has received NSF STTR grants: phase I (\$200K) and phase II (~\$1M).
- 2) **AAR software** for radiation therapy application (AAR-RT) from QRS has been **approved by FDA (April 21, 2021).**

Note: Corps program at Penn is supported by Penn Wharton School, Medicine School, Law School and Penn Center of Innovation as well as Ben Franklin Technology Partners of PA and Wharton Entrepreneurship.

(<http://pci.upenn.edu/icorps/>)

#### **Clinical Certificates:**

GCP (good clinical practice), ICH GCP guidelines.

HIPAA Privacy training; HIPAA privacy and security education; CITI Research training (CITI protection of human subjects-ORA, CITI Responsible conduct-UNIV)

#### **Editorial Positions:**

- 2014- Guest Editor for international Journal IC-MED, Intelligent Computing in Medical Sciences & Image Processing
- 2015- Editor for MAYFEB Journal of Computer science

#### **Program Committee Member/ Chairman for International Conferences:**

Oversea Liaison Chair for ICIG2021 (the 11<sup>th</sup> International Conference on Image and Graphics)

Program committee for

International Conference on Computer Vision and Computational Intelligence (2021-)

SPIE Medical Imaging 2020 (the major conference: Image Processing, 2020-)

IEEE International Conference on Computer Vision Theory and Applications (2014-)

IEEE International Conference on Systems, Man, and Cybernetics (2019/2018/2017/2014)

IEEE International Conference on Fuzzy Systems (FUZZ-2016)

9th International Forum on Multimedia Image Processing /World Automation Congress 2014

International Conference on Emerging Trends in Engineering & Technology 2012

#### **Reviewer for Grants:**

National Science Foundation (United States), SBIR/STTR grant panel meetings (2019-)

#### **Reviewer for Journals:**

Artificial Intelligence in Medicine

Medical Image Analysis

IEEE Transactions on Medical Imaging

IEEE Transactions on Image Processing  
IEEE Transactions on Signal Processing  
IEEE Transactions on Multimedia  
IEEE Transactions on Circuits and Systems for Video Technology  
IEEE Transactions on Broadcasting  
Medical Physics  
Magnetic Resonance Imaging  
Computer Vision and Image Understanding  
Computerized Medical Imaging and Graphics  
EURASIP: signal image and video processing  
Applied Soft Computing  
Journal of Pattern Recognition Research  
Autosoft Journal (ISAC Journal)  
Computing and Informatics journal  
Neural Computing and Applications (NCAA)  
Elsevier/ Signal Processing: Image Communication  
International Journal of Advanced Robotic Systems  
International Journal of Image and Graphics  
International Journal of Biomedical Imaging  
International Journal of Innovative Computing, Information and Control  
Journal of Advanced Computational Intelligence and Intelligent Informatics  
Multimedia Tools and Applications  
World Wide Web Journal  
Magnetic Resonance Materials in Physics, Biology and Medicine  
Journal of Healthcare Engineering  
“Zeitschrift für Medizinische Physik” (Z MED PHYS), an official organ of the  
German and Austrian Society of Medical Physic and the Swiss Society of  
Radiobiology and Medical Physics

**Reviewer for Conferences:**

International Conference on Computer Vision and Computational Intelligence (CVCI)  
2021-  
SPIE Medical Imaging 2020-  
Medical Image Computing and Computer Assisted Interventions (MICCAI 2015-)  
IEEE International Conference on Computer Vision Theory and Applications (2014-)  
IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2013-)  
IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2018/2016/2015)

The IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB 2016/2015)

The 5th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2016)

The 5th International Conference on Electronics, Communications and Networks (2015)

### **Patents and IP disclosures:**

1. Jayaram K. Udupa, Dewey Odhner, **Yubing Tong** and Drew A.Torigian. “An interactive method for standardization and non-uniformity correction of MR image intensities,” United States Patent, **No.:** US10043250B2, **Granted**. Date: Aug. 7, 2018.
2. Jayaram K. Udupa, Dewey Odhner, Drew A.Torigian and **Yubing Tong**: “Applications of anatomy recognition in medical tomographic imagery based on fuzzy anatomy models,” International Patent, **Pub. No.:** WO 2015/175806 A1, Pub. Date: Nov. 19, 2015.
3. Jayaram K. Udupa, Dewey Odhner, **Yubing Tong** and Drew A.Torigian. “Automatic localization of body-wide lymph node stations in medical images using fuzzy models,” (PENN reference 15-7410, 2015) US Patent, submitted.
4. Jayaram K. Udupa, Dewey Odhner, Drew A.Torigian, **Yubing Tong**, A quantitative image-based method for staging of bladder cancer on MR images, **Penn IP Disclosure, 2017**.
5. Jayaram K. Udupa, **Yubing Tong**, Drew A.Torigian, A deep learning based method for chimeric antigen receptor (CAR) T-cell therapy response prediction, **Penn IP Disclosure, 2018**.
6. Jayaram K. Udupa, Tiange Liu, Drew A. Torigian, Dewey Odhner, **Yubing Tong**, Quantification And Staging Of Body-Wide Tissue Composition And Of Abnormal States On Medical Images Via automatic Anatomy Recognition, United States Patent **Application No.** 62/628,943, 2018.
7. Jayaram K. Udupa, **Yubing Tong**, Changjian Sun, Drew A.Torigian et al. Quantitative Dynamic MRI (QdMRI) Analysis and Virtual Growing Child (VGC) 5D Functional Models for treating Respiratory Anomalies, **Penn IP Disclosure, 2019**.
8. Jayaram K. Udupa, **Yubing Tong**, Dewey Odhner, Drew Torigian et al., “Quantification And Staging Of Body-Wide Tissue Composition And Of Abnormal States On Medical Images Via Automatic Anatomy Recognition”, **U.S. Patent Application No.** 16/271,949, Filed February 11, 2019.

### **Journal Papers:**

1. Jieyu Li, Jayaram K. Udupa, **Yubing Tong**, Lisheng Wang, Drew A. Torigian. Segmentation Evaluation with Sparse Ground Truth Data: Simulating True Segmentations as Perfect/Imperfect as Those Generated by Humans. Medical Image Analysis, 2021 (in press).
2. You Hao, Jayaram K. Udupa, **Yubing Tong**, Drew A. Torigian. OFx: A method of 4D image construction from free-breathing non-gated MRI slice acquisitions of the thorax via optical flux. Medical Image Analysis, 2021 (in press).

3. Kok Choy, Sanghun Sin, **Yubing Tong**, Jayaram Udupa, Dirk Luchtenburg, Mark Wagshul, Raanan Arens, and David Wootton. Upper Airway Effective Compliance during Wakefulness and Sleep in Obese Adolescents studied via 2-Dimensional Dynamic MRI and Semi-automated Image Segmentation. JAPPL 2021 (in press).
4. Xu G, Cao H, Udupa JK, **Tong Y**, Torigian DA. DiSegNet: A Deep Dilated Convolutional Encoder-Decoder Architecture for Lymph Node Segmentation on PET/CT images, CMIG 88 (2021) 10185, 2021.
5. **Tong Y**, Udupa JK, McDonough JM, Wu C, Sun C, Qiu C, Lott C, Galagedera N, Anari JB, Mayer OH, Torigian DA, Cahill PJ. Thoracic quantitative dynamic MRI to understand developmental changes in normal ventilatory dynamics. Chest. 2020. doi: 10.1016/j.chest.2020.07.066. PubMed PMID: 32768456.
6. Agrawal V, Udupa JK, **Tong Y**, Torigian DA. BRR-Net: A Tandem Architectural CNN-RNN for Automatic Body Region Localization in CT Images, Medical Physics, <https://doi.org/10.1002/mp.14439>.
7. Al-Naamani N, Pan HM, Anderson MR, Torigian DA, **Tong Y**, Oyster M, Porteous MK, Palmer S, Arcasoy SM, Diamond JM, Udupa JK, Christie JD, Lederer DJ, Kawut SM. Thoracic Visceral Adipose Tissue Area and Pulmonary Hypertension in Lung Transplant Candidates: The Lung Transplant Body Composition Study. Ann Am Thorac Soc. 2020. doi: 10.1513/AnnalsATS.202003-247OC. PubMed PMID: 32530703.
8. Li J, Udupa JK, **Tong Y**, Wang L, Torigian DA. LinSEM: Linearizing segmentation evaluation metrics for medical images. Med Image Anal. 2020;60:101601. doi: 10.1016/j.media.2019.101601. PubMed PMID: 31811980; PMCID: PMC6980787.
9. Xu G, Udupa JK, **Tong Y**, Odhner D, Cao H, Torigian DA. AAR-LN-DQ: Automatic anatomy recognition based disease quantification in thoracic lymph node zones via FDG PET/CT images without Nodal Delineation. Med Phys. 2020;47(8):3467-84. doi: 10.1002/mp.14240. PubMed PMID: 32418221.
10. Bitners AC, Sin S, Agrawal S, Lee S, Udupa JK, **Tong Y**, Wootton DM, Choy KR, Wagshul ME, Arens R. Effect of Sleep on Upper Airway Dynamics in Obese Children with Obstructive Sleep Apnea Syndrome. Sleep. 2020. doi: 10.1093/sleep/zsaa071. PubMed PMID: 32280981.
11. Liu T, Pan J, Torigian DA, Xu P, Miao Q, **Tong Y**, Udupa JK. ABCNet: A new efficient 3D dense-structure network for segmentation and analysis of body tissue composition on body-torso-wide CT images. Med Phys. 2020;47(7):2986-99. doi: 10.1002/mp.14141. PubMed PMID: 32170754.
12. Udupa JK, **Tong Y**, Capraro A, McDonough JM, Mayer OH, Ho S, Wileyto P, Torigian DA, Campbell RM, Jr. Understanding Respiratory Restrictions as a Function of the Scoliotic Spinal Curve in Thoracic Insufficiency Syndrome: A 4D Dynamic MR Imaging Study. J Pediatr Orthop. 2020;40(4):183-9. doi: 10.1097/BPO.0000000000001258. PubMed PMID: 32132448; PMCID: PMC6426694.
13. **Tong Y**, Udupa JK, McDonough JM, Wileyto EP, Capraro A, Wu C, Ho S, Galagedera N, Talwar D, Mayer OH, Torigian DA, Campbell RM. Quantitative Dynamic Thoracic MRI: Application to Thoracic Insufficiency Syndrome in Pediatric Patients. **Radiology**. 2019;292(1):206-13. doi: 10.1148/radiol.2019181731. PubMed PMID: 31112090. (This paper is also requested to be reprinted in another journal **Spine Deformity** for benefiting readers in SRS field (Scoliosis Research Society) after receiving the best science paper award from SRS, 2020).

14. Anderson MR, Udupa JK, Edwin E, Diamond JM, Singer JP, Kukreja J, Hays SR, Greenland JR, Ferrante A, Lippel M, Blue T, McBurnie A, Oyster M, Kalman L, Rushefski M, Wu C, Pednekar G, Liu W, Arcasoy S, Sonett J, D'Ovidio F, Bacchetta M, Newell JD, Torigian D, Cantu E, Farber DL, Giles JT, **Tong Y**, Palmer S, Ware LB, Hancock WW, Christie JD, Lederer DJ. Adipose tissue quantification and primary graft dysfunction after lung transplantation: The Lung Transplant Body Composition study. *J Heart Lung Transplant*. 2019. doi: 10.1016/j.healun.2019.08.013. PubMed PMID: 31474492.
15. Xingyu Wu, Jayaram K Udupa, **Yubing Tong**, Drew A Torigian. AAR-RT - A system for auto-contouring organs at risk on CT images for radiation therapy planning: Principles, design, and large-scale evaluation on head-and-neck and thoracic cancer cases, *Medical Image Analysis*, Accepted.
16. **Tong Y**, Udupa JK, Odhner D, Wu C, Schuster SJ, Torigian DA. Disease quantification on PET/CT images without explicit object delineation. *Med Image Anal*. 2019;51:169-83. doi: 10.1016/j.media.2018.11.002. PubMed PMID: 30453165.
17. Tiange Liu, Jayaram K Udupa, **Yubing Tong**, Drew Torigian. Quantification of body-torso-wide tissue composition on low-dose CT images via Automatic Anatomy Recognition, *Medical Physics*, accepted.
18. **Peirui Bai**‡, Jayaram K Udupa, **Yubing Tong**‡, Drew A Torigian. Body region localization in whole-body PET/CT scans using virtual landmarks, *Medical Physics*, accepted (‡**co-first authorship, contribute equally**).
19. **Tong, YB**, Udupa, JK et al. Radiomics-guided therapy for bladder cancer: Using an Optimal Biomarker Approach to determine extent of bladder cancer invasion from T2-weighted MR images, *Advanced Radiation Oncology*, Vol.3(3), 331-338, 2018.
20. Shuzhi Su, Hongwei Ge, and **Yubing Tong**, Multi-graph embedding discriminative correlation feature learning for image recognition, *Signal Processing: Image Communication*, Volume 60, February 2018, Pages 173-182.
21. Li Li, Hongwei Ge, **Yubing Tong**, Yixin Zhang. Face Recognition Using Gabor-Based Feature Extraction and Feature Space Transformation Fusion Method for Single Image per Person Problem. *Neural Processing Letters*, page 1-21, 2017.
22. Torigian DA, Green-McKenzie J, Liu X, Shofer FS, Werner T, Smith CE, Strasser AA, Moghbel MC, Parekh AH, Choi G, Goncalves MD, Spaccarelli N, Gholami S, Kumar PS, **Tong Y**, Udupa JK, Mesaros C, Alavi A. A Study of the Feasibility of FDG-PET/CT to Systematically Detect and Quantify Differential Metabolic Effects of Chronic Tobacco Use in Organs of the Whole Body-A Prospective Pilot Study. *Acad Radiol*. 2017;24(8):930-40. doi: 10.1016/j.acra.2016.09.003. PubMed PMID: 27769824.
23. **Tong Y**, Udupa JK, Ciesielski KC, Wu C, McDonough JM, Mong DA, Campbell RM, Jr. Retrospective 4D MR image construction from free-breathing slice Acquisitions: A novel graph-based approach. *Med Image Anal*. 2017;35:345-59. doi: 10.1016/j.media.2016.08.001. PubMed PMID: 27567735; PMCID: PMC5099108.
24. **Tong Y**, Udupa JK, Torigian DA, Odhner D, Wu C, Pednekar G, Palmer S, Rozenshtein A, Shirk MA, Newell JD, Porteous M, Diamond JM, Christie JD, Lederer DJ. Chest Fat Quantification via CT Based on Standardized Anatomy Space in Adult Lung Transplant



- Candidates. PLoS One. 2017;12(1):e0168932. doi: 10.1371/journal.pone.0168932. PubMed PMID: 28046024; PMCID: PMC5207652.
25. X Wu, JK Udupa, D Odhner, **Y Tong**, DJ McLaughlin, GV Pednekar, CB Simone, J Camaratta, DA Torigian, Knowledge-Based Auto Contouring for Radiation Therapy: Challenges in Standardizing Object Definitions, Ground Truth Delineations, Object Quality, and Image Quality, *International Journal of Radiation Oncology• Biology• Physics*, 99 (2), e740, 2017.
  26. X Wu, JK Udupa, D Odhner, **Y Tong**, DJ McLaughlin, GV Pednekar, CB Simone, J Camaratta, DA Torigian, e-Rekha: A High-Performance Software System for Auto Contouring Head and Neck Anatomy in Adaptive Radiation Therapy, *International Journal of Radiation Oncology• Biology• Physics*, 99 (2), s177, 2017.
  27. J K Udupa; G Pednekar; D McLaughlin; X Wu; D Odhner; **Y Tong**; C Simone; J Camaratta; D Torigian. Evaluation of Segmentation Methods as a Function of the Quality of Input Images, *Medical Physics*. 44(6):3205, JUN 2017.
  28. **Tong Y**, Udupa JK, Sin S, Liu Z, Wileyto EP, Torigian DA, Arens R. MR Image Analytics to Characterize the Upper Airway Structure in Obese Children with Obstructive Sleep Apnea Syndrome. *PLoS One*. 2016;11(8):e0159327. doi: 10.1371/journal.pone.0159327. PubMed PMID: 27487240; PMCID: PMC4972248.
  29. **Tong Y**, Udupa JK, Odhner D, Wu C, Sin S, Wagshul ME, Arens R. Minimally interactive segmentation of 4D dynamic upper airway MR images via fuzzy connectedness. *Med Phys*. 2016;43(5):2323. doi: 10.1118/1.4945698. PubMed PMID: 27147344; PMCID: PMC4833751.
  30. Sun K, Udupa JK, Odhner D, **Tong Y**, Zhao L, Torigian DA. Automatic thoracic anatomy segmentation on CT images using hierarchical fuzzy models and registration. *Med Phys*. 2016;43(3):1487-500. doi: 10.1118/1.4942486. PubMed PMID: 26936732.
  31. Matsumoto MM, Udupa JK, **Tong Y**, Saboury B, Torigian DA. Quantitative normal thoracic anatomy at CT. *Comput Med Imaging Graph*. 2016;51:1-10. doi: 10.1016/j.compmedimag.2016.03.005. PubMed PMID: 27065241.
  32. Huiqian Wang, Jayaram K. Udupa, Dewey Odhner, **Yubing Tong**, Liming Zhao, Drew A. Torigian. Automatic Anatomy Recognition in Whole-Body PET/CT Images. *Medical Physics* 43(1), 613-629, 2016.
  33. Tiange Liu, Qiguang Miao, Pengfei Xu, **Yubing Tong**, Jianfeng Song, Ge Xia, Yun Yang and Xiaojie Zhai. A Contour-Line Color Layer Separation Algorithm Based on Fuzzy Clustering and Region Growing. *Computers & Geosciences*, Vol. 88: 41-53, 2016.
  34. Michael G Mauk, Jinzhao Song, **Yubing Tong**, Haim H Bau and Changchun Liu. Translating Nucleic Acid Amplification Assays to the Microscale: Lab on a Chip for Point-of-Care Molecular Diagnostics. *Current Analytical Chemistry*, Vol. 12: 1-11, 2016.
  35. Jayaram K. Udupa, Dewey Odhner, Liming Zhao, **Yubing Tong**, Monica M.S. Matsumoto, Krzysztof C. Ciesielski, Alexandre X. Falcao, PavithraVaideeswaran, Victoria Ciesielski, BabakSaboury, Syedmehrdad Mohammadianrasanani, Sanghun Sin, Raanan Arens, Drew A. Torigian. Body-Wide Hierarchical Fuzzy Modeling, Recognition and Delineation of Anatomy in Medical Images. *Medical Image Analysis*, vol. 18, 752-771, 2014.
  36. **Yubing Tong**, Jayaram K. Udupa, Drew Torigian. Optimization of abdominal fat quantification on CT imaging through use of standardized anatomic space-A novel approach. *Medical Physics*, vol. 41(6):0635011-11, 2014.

37. Robert M. Campbell, Jayaram K. Udupa, Jack Flynn, Hank Mayer, Michael Nance, Howard Panitch, Wei-Hsun Wang, **Yubing Tong**, Kieth Baldwin, Joseph McDonough, Andrew Mong. The Etiology of Thoracic Insufficiency Syndrome in Neuromuscular Scoliosis Based on Quantitative Dynamic Lung MRI (QdMRI). *Spine Deformity*, vol. 2(6): 505-506, 2014.
38. **Yubing Tong**, Faouzi Alaya Cheikh, Fahad Fazal Elahi Guraya, Hubert Konik and Alain Tremeau. A Spatiotemporal Saliency Model for Video Surveillance. *Journal of Cognitive Computing, Springer*, vol. 3(1): 241-263, 2011.
39. **Yubing Tong**, Faouzi Alaya Cheikh, Hubert Konik and Alain Tremeau. Full reference image quality assessment based on saliency map analysis. *International Journal of Imaging Science and Technology*, vol. 54(3):030503-030514, 2010.
40. Wenrui Ding, **Yubing Tong** and Qishan Zhang. Image and Video Quality Assessment Using Neural Network and SVM. *Tsinghua Science and Technology*, vol. 16(1): 112-116, 2008.
41. **Yubing Tong**, Dongkai Yang, Qishan Zhang. Wavelet Kernel Support Vector Machines for Sparse Approximation. *Journal of Electronics (Springer)*, vol. 23(4): 539-542, 2006.
42. **Yubing Tong**, Qishan Zhang. Image Quality Assessing Model Based on PSNR and SSIM. *Journal of Image & Graphics*, vol. 11(12): 1758-1763, 2006.
43. **Yubing Tong**, Weiwei Hu, Dongkai Yang and Qishan Zhang. Review of Video Quality Assessment Methods. *Journal of CAD & Computer Graphics*, vol. 18(5): 1-7, 2006.
44. Qing Chang, **Yubing Tong** and Qishan Zhang. Video quality assessing model based on single image quality with different weights, *Journal of Beijing University of Aeronautics and Astronautics*, 2007.33(3).
45. **Tong Yubing**, Chang Qing, Zhang Qishan. H.264 inter-frame sub-block mode and intra-frame mode selection algorithm based on statistic threshold, *Optics and Electronics Engineering*, 2007.4. 133-136.
46. **Tong Yubing**, Chang Qing, Zhang Qishan. Fast fingerprint classification algorithm based on oriented radial and generalized nonsymmetrical features. *Computer Applications*, 2005.Vo.25.No.6, 1307-1309.
47. **Y.B. Tong**, Q.S.Zhang. Design of USB Fingerprint Capturing Device, *Semiconductor and Optics & Electronics*, 2004.Vo.25.No.1, 76-78.
48. **Yubing Tong**, Qing Chang, Qishan Zhang, Patterns of SVM in Digital Watermarking, *Application Research of Computers*, 2005.Vo.22.No.3, 147-149.
49. **Yubing Tong**, Qing Chang, Qishan Zhang, Document Image Compressing Algorithm Based on Image Content Analyzed and Features Extracted, *Radio Engineering of China*, 2004, Vol.34, No.11, 8-10.
50. **Y.B. Tong**, Q.Chang, Q.S.Zhang. Embedded System of CCD Video & Image Capturing, *Optics and Electronics Engineering*, 2004.12.Vol.31, 133-136.
51. Yuan Xiaoyu, **Tong Yubing**. PKI Architecture in Fingerprint Identification Application, *Information Security and Communication Secrecy*, 2004.11, 37-39.
52. **Tong Yubing**, Wu Jinpei. Fuzzy Control of Household Washing Machines Based on Frequency Conversion Technology. *Journal of Wuyi University*, 2002.Vol.16.No.2, 52-57.

53. **Tong Yubing**, Wu Jinpei. Fuzzy Control and Frequency Conversion Technique in Washing Machine Based on MC68332 Single chip. *Computer Measurement & Control*, 2002, Vol.10.No.10, 664-667.

#### Conference Papers:

1. **Y Tong**, JK Udupa, JM McDonough, C Lott, C Wu. Thoracic quantitative dynamic MRI to understand developmental changes in normal ventilatory dynamics. *Medical Imaging 2021: Image-Guided Procedures*. 2021.
2. Y Hao, JK Udupa, **Y Tong**, C Wu, H Li, JM McDonough. Estimation of the dynamic volume of each lung via rapid limited-slice dynamic MRI. *Medical Imaging 2021: Physics of Medical Imaging*, 2021.
3. J Li, JK Udupa, **Y Tong**, D Odhner, DA Torigian. Anatomy recognition in CT images of head and neck region via precision atlases. *Medical Imaging 2021: Image Processing*, 2021.
4. L Xie, JK Udupa, **Y Tong**, DA Torigian, Automatic upper airway segmentation in static and dynamic MRI via deep convolutional neural networks. *Medical Imaging 2021: Biomedical Applications*, 2021.
5. You Hao, Jayaram K Udupa, **Yubing Tong**. 4D image construction from free-breathing MRI slice acquisitions of the thorax based on a concept of flux. *SPIE 2020 Medical Imaging*.
6. Jieyu Li, Jayaram K Udupa, **Yubing Tong**. Anatomy segmentation evaluation with sparse ground truth data. *SPIE 2020 Medical Imaging*.
7. Changjian Sun, Jayaram K Udupa, **Yubing Tong**. Automatic labeling of respiratory phases and detection of abnormal respiratory signals in free-breathing thoracic dynamic MR image acquisitions based on deep learning. *SPIE 2020 Medical Imaging*.
8. Changjian Sun, Jayaram K Udupa, **Yubing Tong**. Segmentation of 4D images via space-time neural networks. *SPIE 2020 Medical Imaging*. *SPIE 2020 Medical Imaging*.
9. Jizheng Yi, Jayaram K Udupa, **Yubing Tong**. Localization and segmentation of optimal slices for chest fat quantification in CT via deep learning. *SPIE 2020 Medical Imaging*.
10. AliAsghar Mortazi, Jayram K Udupa, **Yubing Tong**, Drew A Torigian. A postacquisition standardization method for positron emission tomography images. *SPIE 2020 Medical Imaging*.
11. **Yubing Tong**, Jayaram K Udupa, Drew A Torigian Super-mask-based object localization for auto-contouring in head and neck radiation therapy planning, *SPIE 2019 Medical Imaging*, Accepted.
12. Changjian Sun, Jayaram K Udupa, **Yubing Tong**, Drew A Torigian. A machine learning algorithm for detecting abnormal respiratory cycles in thoracic dynamic MR image acquisitions, *SPIE 2019 Medical Imaging*, accepted (Co-mentor).
13. Changjian Sun, Jayaram K Udupa, **Yubing Tong**, Drew A Torigian. Auto-labeling of respiratory time points in free-breathing thoracic dynamic MR image acquisitions for 4D image construction, *SPIE 2019 Medical Imaging*, competing for best student paper award, accepted (Co-mentor).

14. **Yubing Tong**, Chuang Wang, Jayaram K. Udupa, Caiyun Wu, Gargi Pednekar, Michaela D. Restivo, David J. Lederer, Jason D. Christie, Drew A. Torigian, Quantitative analysis of adipose tissue on chest CT to predict primary graft dysfunction in lung transplant recipients: a novel optimal biomarker approach, SPIE 2018, Medical Imaging (Accepted).
15. **Yubing Tong**, Jayaram K. Udupa, E. Paul Wileyto, Caiyun Wu, Joseph M. McDonough, Anthony Capraro, Oscar H. Mayer, Drew A. Torigian, Robert M. Campbell Jr., Quantitative dynamic MRI (QdMRI) volumetric analysis of pediatric patients with thoracic insufficiency syndrome, SPIE 2018, Medical Imaging (Accepted, **oral presentation**).
16. **Yubing Tong**, Jayaram K. Udupa, Xingyu Wu, Hierarchical model-based object localization for auto-contouring in head and neck radiation therapy planning, SPIE 2018, Medical Imaging (Accepted).
17. Fengxia Yan, Jayaram K. Udupa, **Yubing Tong**, et al. Automatic anatomy recognition using neural network learning of object relationships via virtual landmarks, SPIE 2018, Medical Imaging (Accepted).
18. Xingyu Wu, Jayaram K. Udupa, **Yubing Tong**. Auto-contouring via automatic anatomy recognition of organs at risk in head and neck cancer on CT images, SPIE 2018, Medical Imaging (Accepted, **oral presentation**).
19. Basavaraj N. Jagadale, Jayaram K. Udupa, **Yubing Tong**, Caiyun Wu, MRI in thoracic insufficiency syndrome to assess changes following surgical intervention, SPIE 2018, Medical Imaging (Accepted).
20. Jie Song, Jayaram K. Udupa, **Yubing Tong**, Architectural analysis on dynamic MRI to study thoracic insufficiency syndrome, SPIE 2018, Medical Imaging (Accepted).
21. Gargi V. Pednekar, Jayaram K. Udupa, David J. McLaughlin, Xingyu Wu, **Yubing Tong**. Image quality and segmentation, SPIE 2018, Medical Imaging (Accepted).
22. Guoping Xu, Jayaram K. Udupa, **Yubing Tong**, Dewey Odher et al. Thoracic lymph node station recognition on CT images based on automatic anatomy recognition with an optimal parent strategy, SPIE 2018, Medical Imaging (Accepted).
23. Chuang Wang, Jayaram K. Udupa, **Yubing Tong**, et al. Urinary bladder cancer T-staging from T2-weighted MR images using an optimal biomarker approach, SPIE 2018, Medical Imaging (Accepted).
24. **Y.B. Tong**, J. K. Udupa, C.Y. Wu, D.A. Torigian. TIS segmentation Interactive iterative relative fuzzy connectedness lung segmentation on thoracic 4D dynamic MR images. SPIE 2017, Medical Imaging: Biomedical Applications in Molecular, Structural, and Functional Imaging, 10137, 1013721.
25. **Y.B. Tong**, J. K. Udupa, C.Y. Wu, D.A. Torigian. Disease Quantification on PET/CT Images without Object Delineation. SPIE Medical Imaging 2017 Image-Guided Procedures, Robotic Interventions, and Modeling, 10137, 10137V. (**oral presentation**)
26. **Y.B. Tong**, P.R. Bai, J. K. Udupa. Virtual Landmarks. SPIE Medical Imaging 2017: Image-Guided Procedures, Robotic Interventions, and Modeling, 10135, 1013521.
27. P.R. Bai, J.K. Udupa, **Y.B. Tong**, D.A. Torigian. Automatic thoracic body region localization. SPIE Medical Imaging 2017: Computer-Aided Diagnosis 10134, 101343X.
28. S Xie, W Zhuang, B Li, P Bai, W Shao, **Y Tong**. Blind deconvolution combined with level set method for correcting cupping artifacts in cone beam CT. SPIE Medical Imaging 2017: Image Processing 10133, 101331Z.
29. **Y.B. Tong**, J. K. Udupa, C.Y. Wu, G. Pednekar, J. R. Subramanian, D. J. Lederer, J. Christie, D. A. Torigian. Fat segmentation on chest CT images via fuzzy models, SPIE

- 2016, Medical Imaging: Image-Guided Procedures, Robotic Interventions, and Modeling, 9786, 978609.(oral presentation)
30. **Y.B. Tong**, J. K. Udupa, C.Y. Wu, G. Pednekar, J. R. Subramanian, D. A. Torigian, D. J. Lederer, J. Christie. Fat quantification and analysis of lung transplant patients on unenhanced chest CT images based on standardized anatomic space, SPIE Medical Imaging 2016: Biomedical Applications in Molecular, Structural, and Functional Imaging, 9788, 978817.( oral presentation)
  31. Lidong Huang, Jayaram K. Udupa, **Yubing Tong**, Drew. A. Torigian. Automatic anatomy recognition on CT images with pathology, SPIE Medical Imaging 2016, Computer-aided Diagnosis, 9785, 97851S.( oral presentation)
  32. Li Cao, Jayaram K. Udupa, Dewey Odhner, Lidong Huang, **Yubing Tong**, Drew A. Torigian. A general approach to liver lesion segmentation in CT images, SPIE Medical Imaging 2016: Image-Guided Procedures, Robotic Interventions, and Modeling, 9786, 978623.
  33. Yu Liu, Jayaram K. Udupa, Dewey Odhner, **Yubing Tong**, Drew A. Torigian. Definition and automatic anatomy recognition of lymph node zones in the abdomen and pelvis on CT images, SPIE Medical Imaging 2016: Biomedical Applications in Molecular, Structural, and Functional Imaging, 9788, 97881J.
  34. Yihua Song, Jayaram K. Udupa, Dewey Odhner, **Yubing Tong**, Drew A. Torigian. Lymph node detection in IASLC-defined zones on PET/CT images, SPIE Medical Imaging 2016: Computer-Aided Diagnosis, 9785, 978515.( oral presentation)
  35. **Yubing Tong**, Jayaram K. Udupa, et al. Automatic anatomy recognition in post-tonsillectomy MR images of obese children with OSAS. Proceeding of SPIE, Medical Imaging, Vol 9414, 94140Z1-6, 2015.( oral presentation)
  36. **Yubing Tong**, Jayaram K. Udupa, et al. Interactive non-uniformity correction and intensity standardization of MR images. Proceeding of SPIE, Medical Imaging, Vol 9415, 94111N1-6, 2015.
  37. **Yubing Tong**, Jayaram, K. Udupa, et al. MR image analysis of upper airway architecture in children with OSAS. Proceeding of SPIE, Medical Imaging, Vol 9417, 94172J1-6, 2015.
  38. Liming Zhao, Jayaram K. Udupa, **Yubing Tong**, et al. Automatic anatomy recognition of sparse objects. Proceeding of SPIE, Medical Imaging, Vol 9413, 94133N1-6, 2015.
  39. Huiqian Wang, Jayaram K. Udupa, **Yubing Tong**, et al. Automatic anatomy recognition in PET/CT Images. Proceeding of SPIE, Medical Imaging, Vol 9415, 9415181-6, 2015.( oral presentation)
  40. **Yubing Tong**, Jayaram K. Udupa, et al. A novel non-registration based segmentation approach of 4D dynamic upper airway MR images: minimally interactive fuzzy connectedness. Proceeding of SPIE, Medical Imaging, Vol 9038, 90380Z1-7, 2014.( oral presentation)
  41. **Yubing Tong**, Jayaram K. Udupa, et al. Standardized anatomic space for abdominal fat quantification. Proceeding of SPIE, Medical Imaging, Vol 9304, 90343D1-7, 2014.

42. **Yubing Tong**, Jayaram K. Udupa, et al. Graph-based retrospective 4D image construction from free-breathing MRI slice acquisitions. Proceeding of SPIE, Medical Imaging, Vol 9038, 903801I-7, 2014 .( **oral presentation**).
43. Kaiqiong Sun, Jayaram K. Udupa, Dewey Odhner and **Yubing Tong**. Automatic thoracic anatomy segmentation at CT using hierarchical fuzzy models and registration. Proceeding of SPIE, Medical Imaging, Vol.9036, 90361P1-8, 2014.
44. **Yubing Tong**, Jayaram K. Udupa, et al. Abdominal Adiposity Quantification at MRI via Fuzzy Model-Based Anatomy Recognition, Proceeding of SPIE, Medical Imaging, Vol.8672, 8672R1-7, 2013
45. **Yubing Tong**, Jayaram K. Udupa, et al. Recognition of Upper Airway and Surrounding Structures at MRI in Pediatric PCOS and OSAS, Proceeding of SPIE, Medical Imaging, Vol.8670, 86702S1-7, 2013.
46. Jayaram K. Udupa, O. Dewey and **Yubing Tong**. Fuzzy-Model-Based Body-wide Anatomy Recognition in Medical Images. Proceeding of SPIE, Medical Imaging, Vol.8671, 86712B1-7, 2013.
47. Bahjat Safadi, **Yubing Tong** and Georges Quénot. Incremental learning for active learning based Multi-learners for image indexing. MMM'2011: Proceedings of the 17th international conference on Advances in multimedia modeling, Volume Part I/ LNCS Springer, Volume 6523, 240-250, 2011.
48. **Yubing Tong**, Bahjat Safadi, Georges Quénot. Incremental Multi-Classifer Learning Algorithm on Grid5000 for Large Scale Image Annotation. MM'10/VLS-MCMR'10: Proceedings of the international workshop on Very-large-scale multimedia corpus, mining and retrieval, 1-6, 2010.
49. David Gorisse, Frédéric Precioso, Philippe-Henri Gosselin, Lionel Granjon, Denis Pellerin, Michele Rombaut, Hervé Bredin, Lionel Koenig, Rémi Vieux, Boris Mansencal, Jenny Benois-Pineau, Hugo Boujut, Claire Morand, Hervé Jégou, Stéphane Ayache, Bahjat Safadi, **Yubing Tong**, Franck Thollard, Georges Quénot, Matthieu Cord, Alexandre Benoît, Patrick Lambert. IRIM at TRECVID 2010: semantic indexing and instance search. TREC Video Retrieval Evaluation Online Proceedings (TRECVID), 2010.
50. David Gorisse, Frédéric Precioso, Philippe Gosselin, Lionel Granjon, Denis Pellerin, Michèle Rombaut, Hervé Bredin, Lionel Koenig, Héléne Lachambre, Elie El Khoury, Rémi Vieux, Boris Mansencal, Yifan Zhou, Jenny Benois-Pineau, Hervé Jégou, Stéphane Ayache, Bahjat Safadi, **Yubing Tong**, Franck Thollard, Georges Quénot, Alexandre Benoît, Patrick Lambert. IRIM at TRECVID 2010: High Level Feature Extraction and Instance Search. TREC Video Retrieval Evaluation Online Proceedings (TRECVID), 2010.
51. **Yubing Tong**, Hubert Konik and Alain Tremeau. Color Face-Tuned Salient detection For Image Quality Assessment, EUVIP 2010, 253-260, 2010.
52. Fahad Fazal Elahi Guraya, Faouzi Alaya Cheikh, Alain Tremeau, **Yubing Tong** and Hubert Konik. Predictive Saliency Maps for Surveillance Videos. Ninth International Symposium on Distributed Computing and Applications to Business Engineering and Science (DCABES), 508-513, 2010.

53. **Yubing Tong**, Hubert Konik, Faouzi Alaya Cheikh, Fahad Fazal Elahi Guraya and Alain Tremeau. Multi-Feature based visual saliency detection in surveillance video, Processing of SPIE, Video Communication and Image Processing, Vol. 7744, 7744041- 7744049, 2010. (**Invited paper**).
54. Fahad Fazal Elahi Guraya, Ali Shariq Imran, **Yubing Tong**, Faouzi Alaya Cheikh. A Non-reference Quality Metric Based on Visual Attention Model for Videos, ISSPA, 10-13, 2010.
55. **Yubing Tong**, Qing Chang and Qishan Zhang. Image Quality Assessing by Using Neural Network and Support Vector Machines. The 5th IEEE International Conference on Machine Learning and Cybernetics, Dalian, China, Vol7:3987-3990, 2006.
56. Dongkai Yang, **Yubing Tong** and Qishan Zhang. Sparse Approximation Based on Wavelet Kernel SVM, Proceeding of the 4th International Conference on Machine Learning and Cybernetics, IEEE, Guangzhou, 2005.8, 4249-4253.

**Abstract:**

1. Patrick J. Cahill, MD, **Yubing Tong, PhD**; Jayaram K. Udupa, PhD; Joseph M. McDonough, MS; Caiyun Wu, MS; Catherine Qiu, MS; Carina Lott, MS; Nirupa Galagedera, BA; Jason B. Anari, MD; Drew A. Torigian, MA. Rib-based Anchors Do Not Impair Chest Wall Motion in Early Onset Scoliosis.  
**Best paper award**, ICEOS virtual meeting on November 14, 2020.
2. **Yubing Tong, PhD**; Jayaram K. Udupa, PhD; Joseph M. McDonough, MS; Caiyun Wu, MS; Catherine Qiu, MS; Carina Lott, MS; Nirupa Galagedera, BA; Jason B. Anari, MD; Drew A. Torigian, MA; Patrick J. Cahill, MD, A Novel Imaging Study to Quantify Respiratory Function in Early Onset Scoliosis-Introducing Quantitative Dynamic Magnetic Resonance Imaging (QdMRI) .  
**Russel A Hibbs Best Basic Science paper** in Scoliosis Research Society (SRS) 55<sup>th</sup> Annual Meeting online, Sep. 9 - Sep. 13, 2020.
3. Pulmonary Hypertension (PH) and Thoracic Cage Function in Patients with Early Onset Scoliosis: Assessment with Quantitative Dynamic Magnetic Resonance Imaging (QdMRI) **Yubing Tong, PhD**; Jayaram K. Udupa, PhD; Joseph M. McDonough, MS; Caiyun Wu, MS; Catherine Qiu, MS; Carina Lott, MS; Nirupa Galagedera, BA; Catherine M. Avitabile, MD; Jason B. Anari, MD; Drew A. Torigian, MA; Patrick J. Cahill, MD, Scoliosis Research Society (SRS) 55th Annual Meeting online, Sep. 9 - Sep. 13, 2020.
4. **Tong Y**, Udupa JK, Torigian DA, Cahill PJ, Quantitative Dynamic Thoracic MRI (QdMRI) on Normal Children and Pediatric Patients with Thoracic Insufficiency Syndrome (TIS): Quantitative Evaluation of Vertical Expandable Prosthetic Titanium Rib (VEPTR)-based Surgery, RSNA, 12/2/19, (**Oral presentation**)
5. H. Pan, M. Anderson, J. Diamond, S. Palmer, M. Oyster, D. Torigian, M. Porteous, S. Arcasoy, **Y. Tong**, J. Udupa, J. Christie, S. M. Kawut, D. Lederer, N. Al-Naamani. Subcutaneous adipose tissue is associated with presence of pulmonary hypertension in advanced lung disease. American Thoracic Society International Conference, May 2019. (Accepted, poster presentation)
6. Jayaram K. Udupa, Gargi V. Pednekar, David J. McLaughlin, Xingyu Wu, Dewey Odhner, **Yubing Tong**, Charles B. Simone II, Joseph Camaratta, Drew A. Torigian.

- Evaluation of segmentation methods as a function of the quality of input images. AAPM 2017 Annual meeting. (Accepted, 2017)
7. Xingyu Wu, Jayaram K Udupa, **Yubing Tong**, Drew A. Torigian. ISTRA e-Rekha: A high-performance software system for auto contouring head and neck anatomy in adaptive radiation therapy. ASTRO's 59th Annual Meeting. (Accepted, 2017)
  8. G. K. Sharma, G. S. Ahuja, D. Odhner, **Y. Tong**, M. T. Wiedmann, J. Jing, K. Huoh, N. Pham, Z. Chen, J. K. Udupa, B. J. Wong. A Novel image analysis approach to fourier-domain optical coherence tomography of the neonatal airway to quantify early structure and histopathological mucosal changes associated with neonatal subglottic stenosis: relative “fuzzy” connectedness, ASPO 2015 (Accepted).
  9. Shobhit Sharma, J. K. Udupa, **Y. Tong**, D. A Torigian. “Effect of MRI intensity standardization on liver tissue characterization: a comparison between normal and cirrhotic livers,” RSNA 2014 (Accepted).