

## 甄鑫

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学习经历 (学士、硕士、博士):

2000.9-2005.6 南方医科大学, 生物医学工程, 学士

2005.9-2008.6 南方医科大学, 生物医学工程, 硕士

2010.9-2013.6 南方医科大学, 生物医学工程, 博士

2011.7-2012.8 美国加州大学圣地亚哥分校 Moores 肿瘤中心 CART 实验室访问学者

2016.2-2017.8 美国德州大学西南医学中心肿瘤放射治疗系访问助理教授

工作经历:

2008.7-2010.12 南方医科大学生物医学工程学院医疗仪器研究所, 助教

2010.12-2014.12 南方医科大学生物医学工程学院医疗仪器研究所, 讲师

2014.12-至今 南方医科大学生物医学工程学院医疗仪器研究所, 副教授

研究方向:

医学图像处理, 自适应放射治疗, 肿瘤放射物理, 机器学习在放疗中的应用研究等

主要获奖情况:

2012年, AAPM California Chapter Norm Baily Award 2012, best student paper.

2013年, 获中国人民解放军医疗成果奖三等奖

2014年, 获美国近距离放射治疗2014年会 (American Brachytherapy Society 2014 Meeting) 4篇最优摘要-最优物理奖 (Top Four Abstract- Best in Physics)

2017年, 获美国医学物理学家协会 (American Association of Physicists in Medicine, AAPM) 2017年会Science Council Session论文奖

主要科研课题:

1. 2017年, 国家自然科学基金海外及港澳学者合作研究基金-基于深度学习的宫颈癌放疗并发症预测模型研究 (2018年01月01日 -- 2019年12月31日, 在研, 18万, 主持, 项目编号: 81728016)
2. 2015年, 广东省自然科学基金面上项目一应用于宫颈癌自适应近距离放疗的精确变形配准模型研究 (2015-08-01 至 2018-08-01, 在研, 10万, 主持, 项目编号: 2015A030313302);
3. 2014年, 广州市科技计划项目-珠江科技新星专项一自适应近距离放疗中治疗分次间CT图像变形配准算法研究 (2015-04-01到2018-03-31, 在研, 30万, 主持, 项目编号: 201506010096);
4. 2013年, 国家自然科学基金青年基金项目一自适应放疗中CT和信息缺失CBCT图像快速变形配准方法的研究 (2014年1月-2016年12月, 结题, 23万, 主持, 项目编号: 81301940);

代表性论文:

1. Zhen X, Chen J, Zhong Z, Hrycushko B, Zhou L, Jiang S, Albuquerque K, Gu X: Deep convolutional neural network with transfer learning for rectum toxicity prediction in cervical cancer radiotherapy: a feasibility study. *Phys Med Biol* 2017, 62(21):8246-8263.
2. Zhen X, Zhao B, Wang Z, Timmerman R, Spangler A, Kim N, Rahimi A, Gu X: Comprehensive target geometric errors and margin assessment in stereotactic partial breast irradiation. *Radiation oncology* 2017, 12(1):151.
3. Liao Y, Wang L, Xu X, Chen H, Chen J, Zhang G, Lei H, Wang R, Zhang S, Gu X, Zhen X, Zhou L: An anthropomorphic abdominal phantom for deformable image registration accuracy validation in adaptive radiation therapy. *Med Phys* 2017, 44(6):2369-2378.
4. Li X, Zhang Y, Shi Y, Wu S, Xiao Y, Gu X, Zhen X, Zhou L: Comprehensive evaluation of ten deformable image registration algorithms for contour propagation between CT and cone-beam CT images in adaptive head & neck radiotherapy. *PloS one* 2017, 12(4):e0175906.
5. Liao YL, Chen HB, Zhou LH, Zhen X: Construction of an anthropomorphic abdominal phantom for accuracy validation of deformable image registration. *Technology and health care : official journal of the European Society for Engineering and Medicine* 2016, 24 Suppl 2:S717-723.
6. Li X, Zhang YY, Shi YH, Zhou LH, Zhen X: Evaluation of deformable image registration for contour propagation between CT and cone-beam CT images in adaptive head and neck radiotherapy. *Technology and health care : official journal of the European Society for Engineering and Medicine* 2016, 24 Suppl 2:S747-755.
7. Chen H, Zhong Z, Liao Y, Pompos A, Hrycushko B, Albuquerque K, Zhen X\*, Zhou L, Gu X: A non-rigid point matching method with local topology preservation for accurate bladder dose summation in high dose rate cervical brachytherapy. *Phys Med Biol* 2016, 61(3):1217-1237.
8. Xiao, Y., L.H. Zhou\*, and X. Zhen\*, FISER: Feature Image Space Enhanced Random Walker Algorithm for Brain Tumor Segmentation in Multimodal MR Images. *Journal of Medical Imaging and Health Informatics*, 2015. 5(8): p. 1977-1981.
9. Zhen X, Chen H, Yan H, Zhou L, Mell LK, Yashar CM, Jiang S, Jia X, Gu X, Cervino L: A segmentation and point-matching enhanced efficient deformable image registration method for dose accumulation between HDR CT images. *Phys Med Biol* 2015, 60(7):2981-3002.
10. H. Chen, X. Zhen\*, X. Gu, H. Yan, L. Cervino, Y. Xiao, L. Zhou\*, "SPARSE: Seed Point Auto-Generation for Random Walks Segmentation Enhancement in medical inhomogeneous targets delineation

- of morphological MR and CT images," *Journal of Applied Clinical Medical Physics* 16, 387-402 (2015).
11. Yan H, Zhen X, Folkerts M, Li Y, Pan T, Cervino L, Jiang S B and Jia X 2014 A hybrid reconstruction algorithm for fast and accurate 4D cone-beam CT imaging *Medical Physics* 41 071903
  12. Zhen X, Chen H, Yan H, Zhou L, Mell L, Yashar C M, Jiang S B, Jia X, Gu X and Cervino L 2014a A Deformable Image Registration Method for Dose Accumulation between HDR CT Images *Brachytherapy* 13 S15-S6
  13. Zhen X, Pompoš A, Chen H, Yan H, Zhou L, Jiang S B and Gu X 2014 Towards Accurate OAR Dose Accumulation in Cervix Brachytherapy: Applying a Non-Rigid Point Matching Method for Bladder Deformation *Brachytherapy* 13 S26-S7
  14. Li N, Zarepisheh M, Uribe-Sanchez A, Moore K, Tian Z, Zhen X, Graves Y J, Gautier Q, Mell L, Zhou L, Jia X and Jiang S 2013 Automatic treatment plan re-optimization for adaptive radiotherapy guided with the initial plan DVHs *Phys Med Biol* 58 8725-38
  15. Zhen X, Yan H, Zhou L, Jia X and Jiang S B 2013 Deformable image registration of CT and truncated cone-beam CT for adaptive radiation therapy *Physics in Medicine and Biology* 58 7979-93
  16. Zhen X, Yan H, Hu J, Zhou L, Jia X, Jiang S and Cervino L 2013 SU-E-J-86: A Deformable Image Registration Method for Dose Accumulation Between IMRT and HDR CT Images. *AAPM* pp 000170-170
  17. Yan H, Zhen X, Cervino L, Jiang S and Jia X 2013a WE-G-141-06: Progressive Cone Beam CT Dose Control in Image-Guided Radiation Therapy. *AAPM* pp 000508-508
  18. Yan H, Zhen X, Folkerts M, Pan T, Cervino L, Jiang S and Jia X 2013b TH-C-103-08: BEST IN PHYSICS (IMAGING) --- A Hybrid 4D Cone Beam CT Reconstruction Algorithm for Highly Under-Sampled Projections From the 1-Minute Cone Beam Scan. *AAPM* pp 000543-543
  19. Zhen X, Gu X, Yan H, Zhou L\*, Jia X\*, Jiang SB\*: CT to cone-beam CT deformable registration with simultaneous intensity correction. *Physics in Medicine and Biology* 57(21):6807-6826, 2012.(SCI收录, IF 2.829)
  20. Yan H, Zhen X, Cervino L, Jiang S B and Jia X 2013 Progressive cone beam CT dose control in image-guided radiation therapy *Medical Physics* 40 060701 (SCI收录, IF 2.83)
  21. Zhen X, Graves Y, Yan H, Zhou L\*, Jia X\*, Jiang S\*: WE-E-213CD-07: Deformable Registration Between CT and Truncated CBCT for Adaptive Therapy Dose Calculation. *AAPM* 2012: 3961-3961, Charlotte, USA. 2012.7.29-8.2. (Oral presentation, SCI收录)
  22. Zhen X, Yan H, Gu X, Zhou L\*, Jia X\*, Jiang S\*: WE-E-213CD-04: CT to Cone-Beam CT Deformable Registration With Simultaneous Intensity Correction. *AAPM* 2012: 3960-3960, Charlotte, USA. 2012.7.29-8.2. (Oral presentation, SCI收录)
  23. Graves Y, Zhen X, Kim G, Gautier Q, Tian Z, Cervino L, Lambrecht M, Jia X\*, Jiang S\*: SU-E-T-340: Estimation of the Delivered Fractional and Accumulative Patient Dose in IMRT and VMAT. *AAPM* 2012: 3782-3782, Charlotte, USA. 2012.7.29-8.2. (Oral presentation, SCI收录)
  24. Kearney V, Wang X, Gu X, Yan H, Zhen X, Jia X, Jiang S, Cervino L: SU-C-BRA-02: Evaluation of 2D DIR from CBCT to 4DCT Projections as a Tool for IGART. *AAPM* 2012: 3602-3603, Charlotte, USA. 2012.7.29-8.2. (Oral presentation, SCI收录)
  25. 周露, 甄鑫, 卢文婷, 窦建洪, 周凌宏\*: 基于改进Demons算法的非刚性配准及其在肿瘤放疗中的应用. *南方医科大学学报* 2012(01):40-45.
  26. Zhen X, Zhou L\*, Lu W, Zhang S: Deformable Registration for Re-Contouring and Phase Prediction in 4D CT. In: *Biomedical Engineering and Computer Science (ICBECS)*, 2010 International Conference on: 1-4, Wuhan, China, 2010.4.24-4.25. (EI收录)
  27. 甄鑫, 周凌宏\*, 卢文婷, 张书旭, 周露: 改进Demons算法的验证及其在4D-CT轮廓线推衍中的应用. *南方医科大学学报* 2010(12):2619-2624.
  28. 甄鑫, 陈海斌, 肖阳, 胡洁, 周凌宏: HDR后装治疗CT图像至IMRT CT图像变形配准算法研究. *中华放射肿瘤学杂志* 2015, 24(2):209-212.
  29. 甄鑫, 周凌宏: CT和信息缺失CBCT图像变形配准方法研究. *国外电子测量技术* 2014(06):61-65.

30. 甄鑫, 陈海斌, 肖阳, 胡洁, 周凌宏: 调强放疗CT图像至高剂量率后装治疗CT图像变形配准算法研究. 中国辐射卫生 2014(04):293-297.

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