

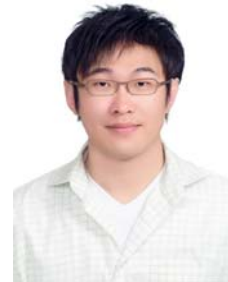
Tzung-Chi Huang

黃宗祺

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Radiological Science
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Research Interests

- Medical Imaging
- Medical Physicist
- Radiotherapy



Education

- 01/2005 ~ 05/2007: Ph.D. in Program of Radiological Sciences, Department of Biomedical Engineering, University of Texas Southwestern Medical Center at Dallas, USA
- 07/2003 ~ 12/2004: Visiting Ph.D. Student in Medical Physicist Department, Radiation Oncology, University of Texas MD Anderson Cancer Center, USA

Experience and Projects

- 08/2015—07/2016, Office of Student Affair, China Medical University.
- 02/2015—01/2016, Director, Mater program in Biomedical Engineering, China Medical University.
- 02/2015—07/2015, Associate Dean, Office of Graduate Student Affair, China Medical University.
- 08/2014—present, China Medical University, Taiwan, Professor in Department of Biomedical Imaging and Radiological Science. Dig data of 4D-PET/CT imaging.
- 02/2011—07/2014, China Medical University, Taiwan, Associate Professor in Department of Biomedical Imaging and Radiological Science. 4D-PET/CT imaging, Angiography, Ventilation Imaging, Radiotherapy.
- 02/2008—01/2011, China Medical University, Taiwan, Assistant Professor in Department of Biomedical Imaging and Radiological Science. Teaching courses including Physics of Radiology I & II, Imaging Process with Borland C++ Builder, Applied Mathematics, Clinical Radiation Dose Measurement. Research projects including application of medical imaging processing, 4D medical imaging, radiation measurement, 4D treatment planning in radiotherapy, gel dosimeter.
- 07/2007—01/2008, H. Lee Moffitt Cancer Center & Research Institute, Florida, USA, Postdoctoral Fellow in Radiation Oncology Department. Research projects including Monte Carlo dose calculations, ventilation study, and 4D radiation dose mapping study.
- 01/2005—05/2007, University of Texas Southwestern Medical Center, Dallas, USA, Radiological Sciences Ph.D. Graduate Student. Mainly involved in performing clinical IMRT QA. Research projects including 4 dimensional radiotherapy treatment planning and dosimetry, and medical image processing, especially in deformable image registration.
- 07/2003—12/2004, University of Texas MD Anderson Cancer Center, Houston, USA, exchanged graduate student, working in proton therapy group. Key person in CT image deformable registration project. Developed 3D optical-flow program that has been used in image deformable registration, 4D dosimetry and planning. The 3D optical flow program is also a useful tool to establish links between different modalities of images. Developed good knowledge and programming skills in image processing

Honors

1. Excellent Researcher , China Medical University , 2016
2. Best Paper Reward , IMRT treatment plans and functional planning with functional lung imaging from 4D-CT for thoracic cancer patients , Taiwan Society of Medical Imaging and Radiological Sciences , 2014
3. Excellent Young Researcher Grant , National Science Council Taiwan , 2013
4. Best Paper Reward , Red Blood Cell Velocity Measurement in Rodent Tumor Model : An in vivo Microscopic Study , Journal of Medical and Biological Engineering 2012
5. Excellent Teaching Faculty , China Medical University , 2012
6. Excellent Researcher , China Medical University , 2011
7. Graduate Student Research Scholarship, University of Texas Southwestern Medical center at Dallas, Texas, USA 2005-2007
8. Graduate Student Research Scholarship, University of Texas MD Anderson Cancer Center, Houston, Texas, USA 2003-2004

Professional Activities

- Journal Editorial Board — Senior Editorial Board, American Journal of Clinical Cancer Research
- Journal Reviewer —
 - Journal of Medical and Biological Engineering (JMBE), 2009-present
 - Journal of Experimental and Clinical Medicine (JECM), 2010-present
 - Biomedical Engineering Online, 2012-present
 - Optics and Lasers in Engineering, 2012-present
 - International Journal of Computer Assisted Radiology and Surgery, 2011-present
 - Medical Dosimetry, 2011-present
 - Plos One, 2013-present
 - European Radiology, 2014-present

Professional Skills

- Programming experience — C, matlab
- Lab experience — Medical Imaging and Signal Processing,
- Clinical experience — Medical Physicist, IMRT QA, machine QA, radioactive source calibration

Publications

Book

1. 4D Study of Thoracic Cancer Radiation Treatment, **TzungChi Huang** and Geoffrey Zhang, 2010 printed, ISBN:978-3-639-09318-6, VDM Verlag Dr. Müller AG & Co. KG

Peer- Reviewed Paper

- **1st || Corresponding Author**
- 1. Shih-Neng Yang, Fang-Jing Li, Chun-Ming Chen, Geoffrey Zhang, Yen-Hsiu Liao, **Tzung-Chi Huang***, Kinetic curve type assessment for classification of breast lesions using dynamic contrast-enhanced MR imaging. PLoS One 2016, 11(4):e0152827 (SCI; IF: 3.7; Ranking: 7/56 (12%));
- 2. Shih-Neng Yang, Shung-Shung Sun, Geoffrey Zhang, Kuei-Ting Chou, Shih-Wen Lo, Yu-Rou Chiou, Fang-Jing Li, **Tzung-Chi Huang***, Left ventricular ejection fraction estimation using

mutual information on technetium-99m multiple-gated SPECT scans. Biomedical Engineering Online 2015(14):119

3. Chin-Hua Yang, Kuei-Ting Chou, Mu-Bai Chung, K. S. Chuang, **Tzung-Chi Huang***, Automatic Detection of Calcaneal-Fifth Metatarsal Angle Using Radiograph: A Computer-Aided Diagnosis of Flat Foot for Military New Recruits in Taiwan. PLoS One 2015(6):e0131387 (SCI; IF: 3.7; Ranking: 7/56 (12%));
4. Shih-Neng Yang, Fang-Jing Li, Yen-Hsiu Liao, Yueh-Sheng Chen, Wu-Chung Shen, **Tzung-Chi Huang***, Identification of Breast Cancer Using Integrated Information from MRI and Mammography. PLoS One 2015(6): e0128404 (SCI; IF: 3.7; Ranking: 7/56 (12%));
5. **Tzung-Chi Huang***, Kuei-Ting Chou, Shih-Neng Yang, Chih-Kai Chang, Ji-An Liang, Geoffrey Zhang. Fractionated changes in prostate cancer radiotherapy using cone-beam CT. Medical Dosimetry. 2015(40)222-225. (SCI; IF: 0.95; Ranking: 99/122 (81%));
6. Yang-Hsien Lin, Kang-Ping Lin, Shih-Min Huang, Hui-Ting Lu, Tien-Hsiang Lin, **Tzung-Chi Huang***, Left ventricle segmentation in dynamic cardiac CT using random walks method, Journal of X-Ray Science and Technology 2015(23): 25-31 (SCI; IF: 1.1; Ranking: 45/80 (56%));
7. **Tzung-Chi Huang***, Kuei-Ting Chou, Yao-Ching Wang, Geoffrey Zhang, Motion Freeze for Respiration Motion Correction in PET/CT: A Preliminary Investigation with Lung Cancer Patient Data, Journal of Biomedicine and Biotechnology 2014;ID:167491 (SCI; IF: 2.7; Ranking: 53/165 (32%))
8. YH Lin, SM Huang, CY Huang, YN Tu, **Tzung-Chi Huang***, Quantitative Analysis of Respiration-Related Movement for Abdominal Artery in Multiphase Hepatic CT. Plos One 2014(12):e114222 (SCI; IF: 3.7; Ranking: 7/56 (12%));
9. **Tzungchi Huang***, Yao-Ching Wang, Yu-Rou Chiou, Chia-Hung Kao, Respiratory motion reduction in PET/CT using abdominal compression for lung cancer patients, PLoS One 2014(9) e98033 (SCI; IF: 3.7; Ranking: 7/56 (12%));
10. **Tzung-Chi Huang***, Yao-Ching Wang, Chia-Hung Kao, Thoracic Tumor Volume Delineation in 4D-PET/CT by Low Dose Interpolated CT for Attenuation Correction, Plos One 2013(8)e75903 (SCI; IF: 3.7; Ranking: 7/56 (12%));
11. Yang-Hsien Lin, Kang-Ping Lin, Juhn-Cherng Liu, **Tzung-Chi Huang***, Ventricular hemodynamics using Cardiac Computed Tomography and Optical Flow Method. Journal of X-Ray Science and Technology 2014(22):129-136 (SCI; IF: 1.1; Ranking: 45/80 (56%));
12. Tung-Hsin Wu, Chung-Jung Lin, Yang-Hsien Lin, Wan-Yuo Guo, **Tzung-Chi Huang***, Quantitative analysis of digital subtraction angiography using optical flow method on occlusive cerebrovascular disease. Computer Methods and Programs in Biomedicine 2013:693-700 (SCI; IF: 1.6; Ranking: 21/100 (21%));
13. Yao-Ching Wang, Hsun-Lin Tseng, Yang-Hsien Lin, Chia-Hung Kao, Wei-Chien Huang, **Tzung-Chi Huang***, Improvement of Internal Tumor Volumes of Non-Small Cell Lung Cancer Patients for Radiation Treatment Planning Using Interpolated Average CT in PET/CT, Plos One 2013;8(5):e64665 (SCI; IF: 3.7; Ranking: 7/56 (12%))
14. Greta Mok, Tao Sun, **Tzung-Chi Huang***, Mang I Vai. Interpolated Average CT for Attenuation Correction in PET – A Simulation Study, IEEE Transactions on Biomedical Engineering 2013;60(7):1927-34. (SCI; IF: 2.3; Ranking: 26/79 (32%));
15. **Tzung-Chi Huang***, Yao-Ching Wang. Deformation effect on SUV_{max} changes in thoracic tumors using 4-D PET/CT scan, Plos One 2013;8(3):e58886 (SCI; IF: 3.7; Ranking: 7/56 (12%));
16. **Tzung-Chi Huang***, Chih-Kai Chang, Chun-Han Liao, Yung-Jen Ho, Quantification of blood flow in internal cerebral artery by optical flow method on digital subtraction angiography in comparison with time-of-flight magnetic resonance angiography, Plos One 2013(8)54678 (SCI; IF: 3.7; Ranking: 7/56 (12%));

17. **Tzung-Chi Huang***, Chien-Yi Hsiao, Chun-Ru Chien, Ji-An Liang, Tzu-Ching Shih, Geoffrey G. Zhang , IMRT treatment plans and functional planning with functional lung imaging from 4D-CT for thoracic cancer patients, Radiation Oncology 2013 (8)3 (SCI; IF: 2.1; Ranking: 44/120 (36%));
18. Bo-Yin Yang, **Tzung-Chi Huang***, Yueh-Sheng Chen*, Chun-Hsu Yao* , Reconstructive Effects of Electrical Stimulation combined with GGT composite on large bone defect in Rats , Evidence-based Complementary and Alternative Medicine , 2013 (SCI; IF: 1.7; Ranking: 8/22 (36%));
19. Da-Chuan Cheng, Mu-Bai Chung, Tzu-Ching Shih, Ji-An Liang, Yueh-Sheng Chen, **Tzungchi Huang***, MAGAT Gel dosimetry validation in RapidArc™ treatment using Cone-beam CT, Journal of Medical and Biological Engineering 2013(33)486-490 (SCI; IF: 0.9; Ranking: 60/79 (75%));
20. **Tzung-Chi Huang**, Tung-Hsin Wu, Chung-Jung Lin, Greta S.P. Mok, Wan-Yuo Guo* , Peri-therapeutic quantitative flow analysis of arteriovenous malformation on digital subtraction angiography, Journal of Vascular Surgery 2012 56(3)812-815 (SCI; IF: 2.9; Ranking: 24/199 (12%));
21. **Tzung-Chi Huang**, Tung-Hsin Wu, Yang-Hsien Lin, Wan-Yuo Guo, Wei-Chien Huang, Chung-Jung Lin*, Quantitative Flow Measurement by Digital Subtraction Angiography in Cerebral Carotid Stenosis Using Optical Flow Method, Journal of X-Ray Science and Technology 2013;21(2):227-35. (SCI; IF: 1.1; Ranking: 45/80 (56%));
22. **Tzung-Chi Huang**, Da-Chuan Cheng*, Arno Schmidt-Trucksass, Uwe H. Schutz, Automated localisation and boundary identification of superficial femoral artery on MRI sequences, Computer Methods in Biomechanics and Biomedical Engineering 2012;16:873-884 (SCI; IF: 1.4; Ranking: 48/100 (54%));
23. Tzu-Ching Shih, Yang-Hsien Ling, Yung-Jen Ho, Hung-Da Hsiao, Yung-Hui Huang, **Tzung-Chi Huang***, Hemodynamic analysis of vascular stenting treatment outcome: Computational fluid dynamics method v.s. Optical flow method, Journal of X-Ray Science and Technology 2012(20)469-481(SCI; IF: 1.1; Ranking: 45/80 (56%));
24. Yung-Jen Ho, Mu-Bai Chang, Yang-Hsien Lin, Chun-Hsu Yao, **Tzung-Chi Huang***, Quantitative portal vein velocity of liver cancer patients with transcatheter arterial chemoembolization on angiography, The Scientific World Journal 2012:830531(SCI; IF:1.7; Ranking: 13/56 (23%));
25. **Tzung-Chi Huang**, Geoffrey Zhang, Chih-Hao Chen, Bang-Hung Yang, Nien-Yun Wu, Shyh-Jen Wang, Tung-Hsin Wu*, Attenuation correction of emission PET images with average CT: interpolation from breath-hold CT, Nuclear Instruments & Methods in Physics Research Section A-Accelerators Spectrometers Detectors and Associated Equipment 2011(633)S156-158 (SCI; IF: 1.1; Ranking: 11/34 (32%));
26. **Tzung-Chi Huang**, Greta S.P. Mok, Shyh-Jen Wang, Tung-Hsin Wu*, Geoffrey Zhang, Attenuation correction of PET images with interpolated average CT for thoracic tumors, Physics in Medicine and Biology 2011(56)2559-2567 (SCI; IF: 2.7; Ranking: 19/79 (24%));
27. **Tzungchi Huang**, Ji-An Liang, Tung-Hsin Wu*, Geoffrey Zhang, Four-dimensional dosimetry validation and study in lung radiotherapy using deformable image registration and Monte Carlo techniques, Radiation Oncology 2010(5)45 (SCI; IF: 2.1; Ranking: 44/120 (36%));
28. Chih-Chieh Wu, Wen-Chen Lin, Geoffrey Zhang, Chin-Wen Chang, Ren-Shyan Liu, Kang-Ping Lin, **Tzung-Chi Huang***, Accuracy evaluation of RBC velocity measurement in nail-fold capillaries, Microvascular Research 2011(81)252-260 (SCI; IF: 2.9; Ranking: 20/68 (29%));
29. **Tzung-Chi Huang**, Geoffrey Zhang, Chih-Hao Chen, Shyh-Jen Wang, Tung-Hsin Wu*, Attenuation Correction of Emission PET Images with Average CT: Interpolation from Breath-Hold

- CT, Nuclear Instruments & Methods in Physics Research Section A-accelerators Spectrometers Detectors and Associated Equipment 2011(633)S156-158 (SCI; IF: 1.1; Ranking: 11/34 (32%));
30. Wen-Chen Lin, Chih-Chieh Wu, Geoffrey Zhang, Tung-Hsin Wu, Yang-Hsien Lin, **Tzung-Chi Huang***, Ren-Shyan Liu, Kang-Ping Lin, An Approach to Automatic Blood Vessel Image Registration of Microcirculation for Blood Flow Analysis on Nude Mice, Computer Methods in Biomechanics and Biomedical Engineering 2011(14)319-330 (SCI; IF: 1.4; Ranking: 48/100 (48%));
 31. Tung-Hsin Wu, Chia-Jung Tsai, Geoffrey Zhang, Chun-Yen Yu, Ji-An Liang, Jay Wu, Jason JS. Lee, Yung-Jen Ho, **Tzung-Chi Huang***, A novel application of normoxic polymer gel dosimeters for near real-time dose measurement using cone-beam computed tomography, Nuclear Instruments & Methods in Physics Research Section A-accelerators Spectrometers Detectors and Associated Equipment 2011(633)279-281 (SCI; IF: 1.1; Ranking: 11/34 (32%));
 32. **Tzung-Chi Huang***, Wen-Chen Lin, Jei Wu, Geoffrey Zhang, Kang-Ping Lin, Experimental estimation of blood flow velocity through simulation of intravital microscopic imaging in micro-vessels by different image processing methods, Microvascular Research 2010(80)477-483 (SCI; IF: 2.9; Ranking: 20/68 (29%));
 33. Tzu-Ching Shih, Geoffrey Zhang, Chih-Chieh Wu, Hung-Da Hsiao, Tung-Hsin Wu, Kang-Ping Lin, **Tzung-Chi Huang***, Hemodynamic analysis of capillary in finger nail-fold using computational fluid dynamics and image estimation, Microvascular Research 2010(81)68-72 (SCI; IF: 2.9; Ranking: 20/68 (29%));
 34. Tung-Hsin Wu, Geoffrey Zhang, Shyh-Jen Wang, Chih-Hao Chen, Bang-Hung Yang, Nien-Yun Wu, **Tzungchi Huang***, Low-dose Interpolated Average CT for Attenuation Correction in Cardiac PET/CT, Nuclear Instruments & Methods in Physics Research Section A-accelerators Spectrometers Detectors and Associated Equipment 2010(619)361-364 (SCI; IF: 1.1; Ranking: 11/34 (32%));
 35. Chih-Chieh Wu, Geoffrey Zhang, **Tzungchi Huang***, Kang-Ping Lin, Red blood cell velocity measurements of complete capillary in finger nail-fold using optical flow estimation, Microvascular Research 2009(78)319-324 (SCI; IF: 2.9; Ranking: 20/68 (29%));
 36. **Tzung-Chi Huang**, Geoffrey Zhang*, Thomas Guerrero, George Starkschall, Kan-Ping Lin and Ken Forster, Semi-automated CT segmentation using optic flow and Fourier interpolation techniques, Computer Methods and Programs in Biomedicine 2006(84)124-134 (SCI; IF: 1.5; Ranking: 21/100 (21%));

Conference Proceedings

1. **Tzung-Chi Huang***, Kuei-Ting Chou, Yao-Ching Wang, Geoffrey Zhang, Motion Freeze for Respiration Motion Correction in PET/CT: A Preliminary Investigation with Lung Cancer Patient Data, American Society for Radiation Oncology 56th Annual Meeting, San Francisco, USA, 2014
2. **Tzung-Chi Huang***, Chien-Yi Hsiao, *et al.* 4D-CT pulmonary ventilation imaging in functional treatment planning for thoracic cancer radiotherapy, 5th Asia Pacific Lung Cancer Conference, Fukuoka, Japan, 2012
3. **Tzung-Chi Huang**, Shyh-Jen Wang, Tung-Hsin Wu*, Iso-Dose Curve Optimizations for Gel Dosimetry, 11th International Symposium on Radiation Physics, Melbourne, Australia, 2009

Grants

1. Arch angle of foot diagnosis from standing lateral X-ray using maximum mutual information, Taoyuan General Hospital, Ministry of Health and Welfare, 2014/01/01-2014/12/31, TWD 500,000
2. 4D PET/CT for thoracic cancer Patients, China Medical University, 103-BC-1, 2014/10/14-2015/07/31, TWD 425,000

3. Respiration deduction on PET/CT image using motion freeze technology, China Medical University, 102-BC-1, 2014/05/01-2015/04/30, 400,000
4. Intrathoracic tumour motion estimation for PET/CT and radiotherapy, Ministry of Science and Technology, 102-2221-E-039 -010 -MY3, 2013/08/01-2016/07/31, TWD 2,343,000
5. Functional treatment planning based on 4D CT for lung cancer patients, China Medical University, 101-S-04, 2012/08/01-2013/07/31, 180,000
6. Dynamic functional pulmonary imaging from four-dimensional computed tomography in radiation treatment planning. Ministry of Science and Technology, 101-2221-E-039-006, 2012/08/01-2013/07/31, TWD 755,000
7. Peri-therapeutic quantitative flow analysis of liver cancer with transcatheter arterial chemoembolization on angiography, China Medical University, 100-TC-03, 2011/10/20-2012.6.19, 200,000
8. Three-dimensional dose verification using normoxic polymer gel dosimeters for Rapid arc, China Medical University, 100-S-39, 2011/08/01-2012/07/31, 260,000
9. Attenuation correction of emission PET images with interpolated average CT using deformable image registration. Ministry of Science and Technology, 99-2221-E-039-010, 2010/08/01-2011/07/31, TWD 626,000
10. Correction of iodine and barium contrast artifacts in PET/CT attenuation Correction, China Medical University, 99-S-46, 2010/08/01-2011/07/31, TWD 320,000
11. Blood flow estimation on microvessels using imaging processing, China Medical University, 98-N2-21, 2010/04/01-2011/03/31, TWD 500,000
12. Radiation dose mapping using deformable image registration, Ministry of Science and Technology, 98-2221-E-039-008, 2009/08/01-2010/07/31, TWD 603,000
13. Radiation Dose Intergration using Thin-Plate Spline, China Medical University, 97-307, 2009/04/01-2010/03/31, TWD 500,000
14. Generation of composite plans over multi treatment stages, China Medical University, 2008/02/01-2008/12/31, TWD 300,000