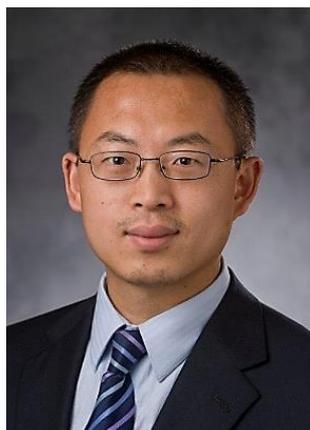


**Jing CAI  
(Professor)**



**QUALIFICATIONS:**

Fellow of AAPM	2018	American Association of Physicists in Medicine (AAPM)
Certificate (American Board of Radiology)	2010	Therapeutic Medical Physics
Residency (University of Virginia)	2009	Medical Physics
PhD (University of Virginia)	2006	Engineering Physics
MS (University of Georgia)	2002	Physics
BS (Lanzhou University)	1998	Physics

**BRIEF OUTLINE OF EXPERIENCE AND POSTS HELD:**

2020-present	Professor, Department of Health Technology & Informatics, HK PolyU
2017-2020	Associate Professor, Department of Health Technology & Informatics, HK PolyU
2014-2017	Associate Professor, Department of Radiation Oncology, Duke University
2009-2013	Assistant Professor, Department of Radiation Oncology, Duke University
2010-2017	Faculty, Medical Physics Graduate Program, Duke University
1998-2000	Software Engineer (part time), Boffin Technologies Ltd.

**RESEARCH INTERESTS:**

Artificial intelligence, deep learning, and big data analytics  
Radiation therapy treatment planning, response assessment, and image-guidance  
Novel medical imaging and image processing techniques (MRI, CT, X-ray)  
Lung cancer, head and neck cancer, liver cancer, cervical cancer, esophageal cancer, etc.  
Intelligent wearable and devices for imaging and radiotherapy applications

**AWARDS (SELECTED FROM > 50):**

2021	Semi-Finalist, 2021 Global Healthcare Innovation Academy (GHIA)
2021	Distinguished Associate Editor for Medical Physics, Medical Physics Journal
2020	Nomination for The President's Award in Research, PolyU
2020	Young Scientist to attend 3 <sup>rd</sup> World Laureates Forum (one of three to represent HK PolyU)
2020	Faculty Award in Research & Scholarly Activities (Individual Award), FHSS, HK PolyU
2020	Young Investigator Symposium Final List, AAPM/COMP Annual Meeting
2019	Hong Kong Innovation Day (3 <sup>rd</sup> Prize)

2019	Excellent Research Award (1 <sup>st</sup> Prize), ICMIP 2019
2019	Top Downloaded Article 2018-2019, Medical Physics journal
2018	Service Award, North American Chinese Medical Physicists Association (NACMPA)
2018	Top Downloaded Article 2017-2018, Medical Physics journal
2017	Young Investigator Symposium Final List, AAPM Annual Meeting
2014	Outstanding Reviewer, International Journal of Radiation Oncology* Biology* Physics
2014	Young Investigator Award (1 <sup>st</sup> place), 2 <sup>nd</sup> MR in RT Symposium
2014	Best Physics Abstract Travel Award, ASTRO Annual Meeting
2012	Best Poster Award (1 <sup>st</sup> Place), 5 <sup>th</sup> North Carolina IGRT/IMRT Symposium
2009	Young Investigator Award (1 <sup>st</sup> Place), American College of Medical Physics

**SERVICE TO PROFESSIONAL & SCIENTIFIC BODIES, CONSULTANCY, MEMBERSHIP OF PROFESSIONAL & LEARNED SOCIETIES:**

Editorial Service

2021-now	Deputy Editor, Medical Physics
2020-now	Associate Editor, Frontiers in Oncology
2019-now	Editorial Board Member, Radiological Medicine and Protection
2019-now	Guest Editor, Special Issue “MRI for Radiation Therapy”, <i>Frontiers in Oncology</i>
2019-now	Guest Editor, Special Issue “Quantitative imaging for Radiation Therapy”, <i>Quantitative Imaging for Surgery and Medicine</i> .
2018-now	Associate Editor, <i>Journal of Applied Clinical Medical Physics (JACMP)</i>
2018-now	Editorial Board Member, <i>Chinese Journal of Radiological Medicine and Protection</i>
2017-now	Associate Editor-in-Chief, <i>Cancer Translational Medicine</i>
2017-now	Department Editor, Point/Counterpoint, <i>Medical Physics</i>
2010-now	Associate Editor, <i>Medical Physics</i>
2017-2018	Associate Senior Editor, <i>International Journal of Radiation Oncology * Biology * Physics</i>
2014-2017	Associate Editor, <i>Cancer Translational Medicine</i>
2007-now	Reviewer for >30 journals: <i>Applied Magnetic Resonance, IEEE Transactions on Medical Imaging, Cancer Translational Medicine, Physics in Medicine and Biology, Technology in Cancer Research and Treatment, OMICS Journal of Radiology, Head &amp; Neck, Journal of Gastroenterology, Practical Radiation Oncology, Journal of Applied Clinical Medical Physics, Academic Radiology, Radiotherapy and Oncology, Medical Physics, International Journal of Radiation Oncology * Biology * Physics, International Journal of Hyperthermia, Journal of Magnetic Resonance Imaging, British Journal of Radiology, Cancer Translation Medicine, European Journal of Radiology, Academic Radiology, QIMS, Radiation Medicine and Protection, Frontiers in Oncology</i>

Professional Service

2021	Co-Chair, Global Forum on Medical Physics Education
2021-now	Chair, Imaging for Treatment Assessment Work Group, AAPM
2020	Chief Examiner, Board Exam of Hong Kong Association of Medical Physics
2019-now	Expert, Shanxi-Ancestry Expert Committee of Radiation Therapy, Shanxi Medical Association
2019	Member, Scientific Committee, International Oncology Symposium on Advances in Immuno-Oncology, Radiation Oncology and Clinical Trials. Shenzhen, China
2019	Chair, Joint CSMP-AAPM Medical Physics Scientific Writing Workshop
2018-now	Member, Unit No.49-Virtual Issues (UN49), <i>Medical Physics</i>
2018-now	Member, Working Group 2 Improving the reader experience by enhancing accessibility and readability, and marketing impact of Journal (BEMPW2), <i>Medical Physics</i>
2018-now	Member, Admission Panel of the Technology Business Incubation Programme, HKSTP
2018-now	Member, Asian Oceanic Affairs Subcommittee, AAPM
2018-now	Member, Award Committee, NACMPA
2016-now	Vice Chair, Imaging for Treatment Assessment Work Group, AAPM
2018-now	Member, CESTRO-PG/NACMPA Annual Meeting Scientific Committee
2018	Programme Director, Mini-symposium on MR in RT, Hong Kong Polytechnic University

2017	Chair, NACMPA Annual Meeting Committee
2017	Secretary, CSTRO-PG Annual Meeting Committee
2017	Co-Director, Certification Course, AAPM Annual Meeting
2017	Co-Director, MR-in-RT Series, AAPM Annual Meeting
2016-2017	Secretary, North American Chinese Medical Physicist Association (NACMPA)
2016	Director, Education Program Therapy Track, AAPM Annual Meeting
2016	Director, Partners in Solutions Therapy Track, AAPM Annual Meeting
2015	Co-Director, Education Program Therapy Track, AAPM Annual Meeting
2015-2016	Member, Imaging for Treatment Assessment Work Group, AAPM
2015-2018	Member, Awards Selection Subcommittee, AAPM
2014-2016	Member, Education Program Subcommittee, AAPM
2014-2016	Member, Meeting Coordination Committee, AAPM
2011	Member, 5 <sup>th</sup> NC IGRT/IMRT symposium local committee
2010-2013	Member, Online Learning Services subcommittee, AAPM

Grant Review

2021-now	Member, Enterprise Support Scheme Assessment Panel, Innovation and Technology Fund
2019	National Institutes of Health (NIH), Special Emphasis Panel, ZCA1 SRB-X(O1)S
2018	National Institutes of Health (NIH), Special Emphasis Panel, ZCA1 SRB-X(J2)S
2017	Department of Defense (DOD), LCRP Concept Award, CET panel
2017	Department of Defense (DOD), LCRP Concept Award, DDP panel
2016	NYCC-MSKCC Partnership Funding
2015	Dutch Technology Foundation
2014	Department of Defense (DOD), LCRP Concept Award, CET panel
2013-2015	Department of Defense (DOD), LCRP Concept Award, DDP panel
2013-2014	Department of Defense (DOD), LCRP Idea/Career Development Award, TTR panel
2013	Department of Defense (DOD), LCRP Idea/Career Development Award, MDP panel
2009	Ontario Research Fund - Research Excellence (ORF-RE) program

Institutional Service

2021-now	Chair, Postgraduate Scheme in Health Technology, HTI, PolyU
2021	Panel Chairman, Validation for UGC-funded full-time BSc(Hons) in Physics [with secondary major in AIDA and/or IE], PolyU
2021-now	Member, Faculty Staffing Committee (FSC), FHSS, PolyU
2021-now	Member, Management Committee, Research Institute for Intelligent Wearable Systems (RI-IWEAR), PolyU
2021-now	Member, Management Committee, Research Institute for Smart Aging (RISA), PolyU
2020-now	Member, Management Committee, University Research Facility in Behavioral and Systems Neuroscience (UBSN), PolyU
2020-now	Member, Ad-Hoc Working Group, University Research Facility in Behavioral and Systems Neuroscience (UBSN), PolyU
2020-now	Founding Director/Programme Leader, MSc in Medical Physics, HTI, PolyU
2019-now	Member, Senate of HK PolyU
2018-now	Member, Department Research Committee (DRC), Department of HTI, HK PolyU
2017-now	Member, Faculty Board, Faculty of Health and Social Sciences, HK PolyU
2016-now	Member, Curriculum and Qualifying Exam Committee, Medical Physics, Duke-Kunshan Univ.
2016	Member, DGS Search Committee, Medical Physics Graduate Program, Duke University
2015-2017	Chair, Curriculum Committee, Medical Physics Graduate Program, Duke University
2015-2017	Chair, Education Excellence Task Force, Medical Physics Program, Duke University
2015-2017	Member, Duke Cancer Institute, Duke University
2015	Member, Advisory Search Committee, Medical Physics Program, Duke University
2013-2017	At-large Member, Medical Physics Administrative Council, Duke University
2009-2016	Member, Medical Physics Residency Admission Committee, Duke University

**SELECTED PUBLICATIONS AND CONFERENCE PAPERS (SELECTED FROM > 120):**

- Li T, Cui Di, Ren Ge, Hui ES, **Cai J**. Investigation of the effect of acquisition schemes on time-resolved magnetic resonance fingerprinting. *Phys Med Biol*. 2021 Apr 28;66(9). doi: 10.1088/1361-6560/abf51f.
- Ren G, Ho W, Yin C, Xiao H, Li T, Qin J, **Cai J**. Deep Learning Based Computed Tomography Perfusion Mapping (DL-CTPM) for Functional Lung Avoidance Radiation Therapy (FLART), *Int J Radiat Oncol Biol Phys*. 2021 Mar 6;S0360-3016(21)00210-8. doi: 10.1016/j.ijrobp.2021.02.032.
- Ren G, Lam S, Jiang Z, Xiao H, Cheung A, Ho W, Qin J, **Cai J**. Investigation of a Novel Deep Learning-Based Computed Tomography Perfusion Mapping Framework for Functional Lung Avoidance Radiotherapy. *Frontiers in Oncology*. 2021 Mar, 11, 644703. DOI=10.3389/fonc.2021.644703
- Li T, Cui D, Hui ES, **Cai J**. Time-Resolved Magnetic Resonance Fingerprinting for Radiotherapy Motion Management. *Med Phys*. 2020 Oct;47(12);6286-6293. doi: 10.1002/mp.14513. (Editor's Choice)
- Tie X, Lam SK, Zhang Y, Lee KH, Au KH, **Cai J**. Pseudo-CT generation from multi-parametric MRI using a novel multi-channel multi-path conditional generative adversarial network for nasopharyngeal carcinoma patients. *Med Phys*. 2020 Feb 3. doi: 10.1002/mp.14062.
- Jia X, Ren L, **Cai J**. Clinical implementation of AI technologies will require interpretable AI models. *Med Phys*. 2019 Oct 30. doi: 10.1002/mp.13891.
- Yu T, Lam SK, To LH, Tse KY, Cheng NY, Fan YN, Lo CL, Or KW, Chan ML, Hui KC, Chan FC, Hui WM, Ngai LK, Lee KH, Au KH, Yip WY, Zhang Y, **Cai J**. Pretreatment Prediction of Adaptive Radiation Therapy Eligibility Using MRI-Based Radiomics for Advanced Nasopharyngeal Carcinoma Patients. *Frontiers in Oncology*, 16 October 2019, doi.org/10.3389/fonc.2019.01050.
- Liang X, Yin FF, Wang C, Cai J. A Robust Deformable Image Registration Enhancement Method based on Radial Basis Function. *Quant Imaging Med Surg*. 2019;9(7):1315-1325
- Sun D, Liang X, Yin FF, Cai J. Probability-based 3D K-space Sorting for Motion Robust 4D-MRI. *Quant Imaging Med Surg*. 2019;9(7):1326-1336
- Hu L, Huang Q, Cui T, Duarte I, Miller GW, Mugler III J, Cates G, Mata J, de Lange E, Altes T, Yin FF, **Cai J**. A hybrid proton and hyperpolarized gas tagging MRI technique for lung respiratory motion imaging: the feasibility study. *Phys Med Biol*. 2019 May 16;64(10):105019. doi: 10.1088/1361-6560/ab160c.
- Yu CX, Bortfeld T, **Cai J**. In the future, disruptive innovation in radiation oncology technology will be initiated mostly by entrepreneurs. *Med Phys*. 2019 May;46(5):1949-1952.
- Zhang Y, Folkert MR, Li B, Huang X, Meyer JJ, Chiu T, Lee P, Tehrani JN, **Cai J**, Parsons D, Jia X, Wang J. 4D liver tumor localization using cone-beam projections and a biomechanical model. *Radiother Oncol*. 2019 Apr;133:183-192.
- Pan Y, Yang R, Zhang S, Li J, Dai J, Wang J, **Cai J**. National survey of patient specific IMRT quality assurance in China. *Radiat Oncol*. 2019 Apr 25;14(1):69.
- J Kipritidis, G Cazoulat, B Tahir, M Hofman, S Siva, J Callahan, T Yamamoto, G Christensen, J Reinhardt, N Kadoya, T Patton, S Gerard, I Duarte, B Archibald-Heeren, M Byrne, R Sims, E Eslick, F Hegi-Johnson, H Woodruff, R Ireland, J Wild, **J Cai**, J Bayouth, K Brock, P Keall. The VAMPIRE Challenge: A Multi-Institutional Validation Study of CT Ventilation Imaging. *Med Phys* 2019 Mar;46(3):1198-1217.
- Wang C, Yin FF, Chang Z, **Cai J**. A Spatiotemporal-Constrained Sorting Method for Motion-robust 4D-MRI: A Feasibility Study. *Int J Radiat Oncol Biol Phys*. 2019 Mar 1;103(3):758-766.
- Han S, Yin FF, **Cai J**. Evaluation of dosimetric uncertainty caused by MR geometric distortion in MRI-based liver SBRT treatment planning. *J Appl Clin Med Phys*. 2019 Feb;20(2):43-50.
- Njeh CF, Snyder KC, **Cai J**. The use of six degrees of freedom couch is only clinically beneficial in stereotactic radio surgery. *Med Phys*. 2019 Feb;46(2):415-418.
- Rangaraj R, Yaddanapudi S, **Cai J**. Transmission detectors are safe and the future for patient-specific QA in radiation therapy. *Med Phys*. 2019 Jan;46(1):1-4.
- Cui T, Miller GW, Mugler JP, Gorden C, Mata JF, de Lange EE, Huang Q, Altes T, Yin FF, **Cai J**. An Initial Investigation of Hyperpolarized Gas Tagging Magnetic Resonance Imaging in Evaluating Deformable Image Registration Based Lung Ventilation. *Med Phys*. 2018 Dec;45(12):5535-5542.
- Harris W, Wang C, Yin FF, **Cai J**, Ren L. A Novel method to generate on-board 4D MRI using prior 4D MRI and on-board kV projections from a conventional LINAC for target localization in liver SBRT. *Med Phys*. 2018 May 25. doi: 10.1002/mp.12998.
- Van den Heuvel F, Wu Q, **Cai J**. Frank In modern linacs monitor units should be defined in water at 10 cm depth rather than at dmax. *Med Phys*. 2018 May 28. doi: 10.1002/mp.13015.

- Sawant A, Yamamoto T, **Cai J**. Treatment planning based on lung functional avoidance is not ready for clinical deployment. *Med Phys*. 2018 Mar 23. doi: 10.1002/mp.12881.
- Xing L, Krupinski EA, **Cai J**. Artificial intelligence will soon change the landscape of medical physics research and practice. *Med. Phys.* 2018 May;45(5):1791-1793. doi: 10.1002/mp.12831.
- Sheng K, Pawlicki T, **Cai J**. A career path for pure academic medical physicists in radiation oncology should be established. *Med. Phys.* 2018 Jul;45(7):2853-2856. doi: 10.1002/mp.12921.
- David J, **Cai J**, Yi R. CAMPEP graduate program standards should require a dedicated course in Magnetic Resonance Imaging physics. 2018 May;19(3):5-8. doi: 10.1002/acm2.12332
- Oellers P, Mowery YM, Perez BA, Stinnett S, Mettu P, Vajzovic L, Rivera D, Alkaissi A, Steffey BA, **Cai J**, Dutton JJ, Buckley EG, Halperin E, Marks LB, Kirsch DG, Mruthyunjaya P. Efficacy and safety of low dose Iodine plaque brachytherapy for juxtaepillary choroidal melanoma. *Am J Ophthalmol*. 2017 Nov 30. pii: S0002-9394(17)30486-5. doi: 10.1016/j.ajo.2017.11.008.
- Chu ML, Chang HC, Chung HW, Bashir MR, **Cai J**, Zhang L, Sun D, Chen NK. Free-breathing abdominal MRI improved by Repeated k-t-subsampling and artifact-minimization (ReKAM). *Med Phys Med Phys*. 2018 Jan;45(1):178-190.
- Harris W, Yin FF, Wang C, Zhang Y, **Cai J**, Ren L. Accelerating volumetric cine MRI (VC-MRI) using undersampling for real-time 3D target localization/tracking in radiation therapy: a feasibility study. *Phys Med Biol*. 2017 Dec 14;63(1):01NT01. doi: 10.1088/1361-6560/aa9746.
- Segars P, Tsui B, **Cai J**, Yin FF, Fung G, Samei E. Application of the 4D XCAT Phantoms in Biomedical Imaging and Beyond. *IEEE Transactions on Medical Imaging*. 2017 Aug 10. doi: 10.1109/TMI.2017.2738448.
- Liu Y, Zhong X, Dale B, Czito B, Bashir M, Palta M, Yin FF, **Cai J**. Four-Dimensional Diffusion-Weighted MR imaging (4D-DWI): A Feasibility Study. *Med. Phys.* 2017 Feb 44(2) 397-406.
- Liang X, Yin FF, Liu Y, **Cai J**. A probability-based multi-cycle sorting method for 4D-MRI: a simulation study. *Med. Phys.* 2016 Dec;43(12):6375-85.
- Liu Y, Yin FF, D Rhee, **Cai J**. Accuracy of Respiratory Motion Measurement of 4D-MRI: A Comparison between Cine and Sequential Acquisition. *Med. Phys.* 2016 Jan;43(1):179-187.
- Liu Y, Yin FF, Czito B, Bashir M, **Cai J**. T2-weighted Four Dimensional Magnetic Resonance Imaging (4D-MRI) with Result-Driven Phase Sorting. *Med Phys* 2015; 42(8):4460-71.
- Liu Y, Yin FF, Chen NK, Chu ML, **Cai J**. Four Dimensional Magnetic Resonance Imaging (4D-MRI) with Retrospective K-space Sorting: a Feasibility Study. *Med. Phys* 2015 Feb;42(2):534-41.
- **Cai J**, Malhortra H, Orton CG. Point/Counterpoint: A 3D-conformal technique is better than IMRT or VMAT for lung SBRT. *Med Phys* 2014; Apr;41(4):040601-4. (*Most Read in 2014, > 2500 PDF downloads, >7000 abstract page view*)
- Liu Y, Yin FF, Chang Z, Czito B, Palta M, Bashir M, Qin Y, **Cai J**. Investigation of Sagittal Image Acquisition for 4D-MRI with Body Area as Respiratory Surrogate. *Med Phys*, Oct;41(10):101902-13.
- Qin Y, Zhang F, Kelsey C, Yoo D, Yin FF, **Cai J**. Adaptive Stereotactic-Body Radiation Therapy (SBRT) Planning for Lung Cancer. *Int J Radiat Oncol Biol Phys* 2013 Sep 1;87(1):209-15.
- Zhang F, Hu J, Kelsey C, Yoo D, Yin FF, **Cai J**. Reproducibility of Tumor Motion Probability Distribution Function (PDF) in Stereotactic Body Radiation Therapy (SBRT) of Lung Cancer. *Int J Radiat Oncol Biol Phys* 2012;84(3):861-866.
- **Cai J**, Chang Z, Wang Z, Segars WP, Yin FF. Four-dimensional Magnetic Resonance Imaging (4D-MRI) using Body Area as Internal Respiratory Surrogate: a Feasibility Study. *Med. Phys* 2011 38(12):6384-6394.
- Adamson J, Chang Z, Wang Z, Yin FF, **Cai J**. Maximum Intensity Projection (MIP) imaging using multi-slice cine MRI. *Med. Phys* 2010 37(11): 5914-5920.
- **Cai J**, McLawhorn R, Larner JM, Read PW, Yin FF, Benedict SH, Sheng K. Effects of breathing variation on internal target volume (ITV) in respiratory gated radiation therapy. *Med Phys* 2010;37(8):3297-3934.
- **Cai J**, Sheng K, Read PW, Larner JM, Benedict SH, Mugler JP III, Miller GW. MR dynamic tagging using hyperpolarized helium-3 for the assessment of lung motion during breathing. *Int J Radiat Oncol Biol Phys*. 2009;75(1),276-284.
- **Cai J**, Mata JF, Orton MD, Hagspiel KD, Mugler JP, Larner JM, Benedict SH, Sheng K, Read PW. A rabbit irradiation platform for outcome assessment of lung stereotactic radiosurgery. *Int J Radiat Oncol Biol Phys*. 2009;73(5),1588-1595.

- **Cai J**, Read PW, Larner JM, Benedict SH, Sheng K. Reproducibility of inter-fractional lung motion probability distribution function (PDF) using dynamic MRI: statistical analysis. *Int J Radiat Oncol Biol Phys.* 2008;72(4):1228-1235.
- **Cai J**, Read PW, Baisden JM, Larner JM, Benedict SH, Sheng K. Estimation of the error in maximum intensity projection (MIP) based internal volume (ITV) of lung tumors: a simulation and comparison study based on dynamic MRI. *Int J Radiat Oncol Biol Phys* 2007;69:895-902.
- **Cai J**, Miller GW, Altes TA, Mugler JP III, Brookeman JR, Read PW, Larner JM, Benedict SH, Sheng K. Direct measurement of lung motion using hyperpolarized Helium-3 MR tagging. *Int J Radiat Oncol Biol Phys* 2007;68:650-653. (*Rapid Communication*).

#### RESEARCH GRANTS (SELECTED FROM > 40):

ITF-MHKJFS 1/2022-12/2023

*Key technology development and multicenter validation for cervical cancer intelligent radiotherapy*

The goal of this study is to develop a novel intelligent Multi-omics Analytical Platform for Cervical Cancer (iMAP-CC). This will be the first radiotherapy-focused omics analytics platform.

Role: PI

深港澳科技计划项目 (C类项目) 1/2022-12/2023

*Multi-omics based Intelligent Prognostic System for Cancer Radiotherapy --- Multi-center Study*

The goal of this study is to develop a Multi-omics based Prognostic System for Tumor Radiotherapy (Multi-omics based Prognostic System for Tumor Radiotherapy) to predict the progression of tumor patients after radiotherapy.

Role: PI

NIH R01 CA226899 7/2019-7/2024

*Toward precision radiotherapy: Physiological modeling of respiratory motion based on ultra-quality 4D-MRI*

The main goal of this project is to construct physiologically plausible XCAT digital phantoms for radiotherapy applications, based on direct imaging of lung and liver motion during breathing.

Role: PI

深圳基础研究项目 9/2021-8/2024

*Prognostic prediction of radiotherapy for nasopharyngeal carcinoma by combining radiologic multiomics with interpretable fuzzy systems*

The goal of this study is to develop new machine learning algorithms for multi-omics-based research on the prognosis prediction of nasopharyngeal carcinoma patients receiving radiotherapy.

Fund: RMB 600,000

Role: PI

RI-IWEAR Seed Fund 7/2021-6/2022

*Intelligent assessment and monitoring system for radiation dermatitis using a rapid approximation and decision-making deep fuzzy model*

The goal of the study is to develop a rapid approximation and decision-making deep learning model for classifying radiation dermatitis severities of radiotherapy nasopharyngeal carcinoma patients.

Role: PI

Project of Strategic Importance, PolyU 5/2021-4/2023

*Intelligent Management of Chemo-radiotherapy-induced Clinical and Social Effects of Locoregionally Advanced Nasopharyngeal Carcinoma Cancer Patients.*

The goal of the study is to investigate and understand the complex relationships between clinical/social effects of RT and various impacting factors and to develop and evaluate effective treatments and rehabilitations to mitigate the devastating side-effects through inter-disciplinary collaborations and development/application of advanced technologies.

Role: PI

HMRP COVID190211 11/2020-4/2022

*AI-empowered chest X-ray and CT quantitative analysis for COVID-19 patient management*

The goal of the study is to develop and evaluate artificial intelligence (AI) techniques for enhancement and quantitatively analyses of chest X-ray and CT images for more effective COVID-19 diagnosis and patient management.

Role: PI

GRF 15103520/20M 1/2021-12/2023

*Artificial Intelligence-assisted Pulmonary Function Mapping for Functionally Guided Lung Cancer Radiotherapy*

The goal of the study is to develop a novel, artificial intelligence (AI)-assisted method for synthesizing pulmonary function images (V/Q) using radiotherapy planning computed tomography (CT) images.

Role: PI

HMRP 07183266 4/2020-3/2023

*Investigation of a Novel Deep Learning-based Pulmonary Ventilation Imaging Method for Lung Cancer Functional Avoidance Radiotherapy*

The goal of the study is to investigate a deep learning-based CT ventilation imaging (CTVI<sub>DL</sub>) method through optimization and evaluation in a prospective clinical study of locally advanced non-small cell lung cancer (NSCLC) patients.

Role: PI

ITS/080/19 4/2020-3/2022

*Development of A Patient Stratification Software Tool for Identifying Nasopharyngeal Carcinoma Patients for Adaptive Radiation Therapy*

The goal of the study is to develop an effective patient stratification software tool for identifying NPC patients for ART. We will perform comprehensive analysis of NPC patients' clinical, imaging and dosimetric data using advanced machine learning algorithms and radiomics analysis to yield a more accurate and robust predictive signature to determine the need for ART of NPC patients.

Role: PI

GRF 151022/19M 1/2020-12/2022

*A Novel Magnetic Resonance Fingerprinting–Based Radiotherapy Treatment Planning Framework for Abdominal Cancers*

Our long-term goal is to develop and clinically implement a MRF-based TP (MRF-TP) technology to improve the radiotherapeutic management of cancers. The objective of the project outlined in this application is to develop a preliminary MRF-TP framework for radiotherapy for abdominal cancers.

Role: PI

HMRP 06173276 7/2019-06/2022

*Evaluation of 4D Diffusion-weighted MRI (4D-DWI) for Stereotactic Body Radiation Therapy (SBRT) of Abdominal Cancers in a Pilot Clinical Trial*

The goal of the study is to optimize and evaluate 4D-DWI for SBRT of abdominal cancers.

Role: PI

GRF 151021/18M 1/2019-06/2022

*Ultra-quality 4D-MRI for Stereotactic Body Radiation Therapy of Liver Cancer*

The goal of the study is to develop a new methodology for generating ultra-quality 4D-MRI images, and to evaluate its clinical efficacy in radiotherapy planning of liver cancer.

Role: PI