

PUBLICATIONS (h-index: 52, Google Scholar: scholar.google.com/citations?user=qY6pzKoAAAAJ)

• **Book**

1. “Applications of GPU-based High Performance Computing in Radiation Therapy,” edited by **Xun Jia**, and Steve B. Jiang. Published in 2015 by Taylor & Francis Group/CRC Press. ISBN 9781482244786.

• **Book chapters**

1. Dan Nguyen, Chenyang Shen, **Xun Jia**, Steve Jiang, “Reinforcement learning for radiation therapy planning and image processing,” in “Artificial Intelligence in Radiation Oncology and Biomedical Physics,” edited by Gilmer Valdes and Lei Xing. Published in 2023 by CRC press. ISBN 9781000903751.
2. You Zhang, Jing Wang, **Xun Jia**, “Uncertainties of IGRT for Abdominal Cancer Radiotherapy,” in “Principles and Practice of Image-Guided Abdominal Radiation Therapy,” edited by Yu Kuang. Published in 2022 by Institute of Physics Publishing. ISBN 9780750324663.
3. Youfang Lai, Sami Hissoiny, **Xun Jia**, “GPU-based Fast Monte Carlo Simulation for Radiotherapy Dose Calculation,” in “Monte Carlo Applications in Radiation Therapy,” 2nd edition, edited by Joao Seco, and Frank Verhaegen. Published in 2021 by CRC Press. ISBN 1032079932.
4. Omer Burnett, **Xun Jia**, Elizabeth Kidd, Ann Klopp, “Intensity Modulated Radiation Therapy and Volumetric Modulated Arc Therapy,” in “Radiation Therapy Techniques for Gynecological Cancers: A comprehensive approach,” edited by Kevin Albuquerque, Sushil Beriwal, Beth Erickson, Akila Viswanathan. Published in 2019 by Springer. ISBN 9783030014438.
5. Asa Carlsson Tedgren, **Xun Jia**, Alexandr Malusek, Manuel Sanchez-Garcia, “Advanced method in brachytherapy dose calculations,” in “Emerging Technologies in Brachytherapy,” edited by William Song, Kari Tanderup, Bradley Pieters. Published in 2017 by Taylor & Francis Group/CRC Press. ISBN 9781498736527.
6. **Xun Jia**, Sami Hissoiny, and Steve B. Jiang, “GPU-based Fast Monte Carlo Simulation for Radiotherapy Dose Calculation,” in “Monte Carlo Applications in Radiation Therapy,” edited by Joao Seco, and Frank Verhaegen. Published in 2013 by Taylor & Francis Group/CRC Press. ISBN 9781466507920.

• **Review Articles**

1. **Xun Jia**, Brett Cater, Aileen Duffton, Emma Harris, Robert Hobbs, Heng Li, “Advancing the Collaboration between Imaging and Radiation Oncology,” *Seminars in Radiation Oncology*, **34**, 402 (2024).
2. Surbhi Grover, Laurence Court, Sheldon Amoo-Mitchual, Mac Longo, Danielle Rodin, Aba Anoa Scott, Yolande Lievens, Mei Ling Yap, May Abdelwahab, Peter Lee, Ekaterina Harsdorf, Jamal Khader, **Xun Jia**, Manjit Dosanjh, Ahmed Elzawawy, Tofeeq Ige, Miles Pomper, David Pistenmaa, Patricia Hardenbergh, Daniel Petereit, Michele Sargent, Kristin Cina, Benjamin Li, Yavuz Anacak, Chuck Mayo, Nikki Prattipati, Nwamaka Lasebikan, Katherine Rendle, Donna O’Brien, Eugenia Wendling, C Norman Coleman, “Global Workforce and Access: Demand, Education, Quality,” *Seminars in Radiation Oncology*, **34**, 477 (2024).
3. **Xun Jia**, Kevin Albuquerque, “Artificial Intelligence and Deep learning for brachytherapy,” *Seminars in Radiation Oncology*, **32**, 389 (2022).
4. Dan Nguyen, Mu-Han Lin, David Sher, Weiguo Lu, **Xun Jia**, Steve Jiang, “Advances in Automated Treatment Planning,” *Seminars in Radiation Oncology*, **32**, 343 (2022).

5. William Song, James Robar, Björn Morén, Torbjörn Larsson, Åsa Carlsson Tedgren, **Xun Jia**, “Emerging technologies in brachytherapy,” Topic Review article, *Phys. Med. Biol.*, **66**, 23TR01 (2021).
6. Hyojun Park, Harald Paganetti, Jan Schuemann, **Xun Jia**, and Chul Hee Min, “Monte Carlo methods for device simulations in radiation therapy,” Topic Review article. *Phys. Med. Biol.*, **66**, 18TR01 (2021).
7. Adam Cunha, Ryan Flynn, Cedric Belanger, Cameron Callaghan, Yusung Kim, **Xun Jia**, Zhe Chen, Luc Beaulieu, “Brachytherapy Future directions,” *Special issue on Brachytherapy in Seminars of Radiation Oncology*, **30**, 94 (2020).
8. Hongming Shan, **Xun Jia**, Pingkun Yan, Yunyao Li, Harald Paganetti, Ge Wang, “Synergizing Medical Imaging and Radiotherapy with Deep Learning,” *Machine Learning: Science and Technology*, **1**, 021001 (2020).
9. Chenyang Shen, Dan Nguyen, Zhiguo Zhou, Steve Jiang, Bin Dong, **Xun Jia**, “An Introduction to Artificial Intelligence in Medical Physics: Advantages, Potential and Challenges,” *Phys. Med. Biol.*, **65**, 05TR01 (2020).
10. Philippe Després, **Xun Jia**, “A review of GPU-based medical image reconstruction,” *Physica Medica, European Journal of Medical Physics*, **42**, 76 (2017).
11. **Xun Jia**, Peter Ziegenhein, Steve B. Jiang, “GPU-based high-performance computing for radiation therapy,” Topic review, *Phys. Med. Biol.*, **59**, R151 (2014).
12. **Xun Jia**, Todd Pawlicki, Kevin T. Murphy, and Arno J. Mundt, “Proton therapy dose calculations on GPU: advances and challenges,” *Translational Cancer Research*, **1-3**, 207 (2012).

• **Peer-Reviewed Journal Publications**

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1. Lin Su, Ellen Huang, Devin Miles, Reza Farjam, Ian Marsh, Qiongge Li, Joseph Moore, Todd McNutt, Kai Ding, Ken Wang, Adam Robinson, Gregory Kuri, Richard Seabrease, David Adam, Ryan Oglesby, Bin Shen, BinBin Wu, Junghoon Lee, **Xun Jia**, and Sarah Han-Oh, “Commissioning and validation of a single photon beam model in RayStation for multiple matched Elekta Linacs,” Accepted by *JACMP* (2024).
2. Xuhui Ning, Yuncheng Zhong, Qi Cai, Yaohong Wang, **Xun Jia**, Jer-Tsong Hsieh, Jie Zheng, and Mengxiao Yu, “Gold Nanoparticle Transport in the Injured Kidneys with Elevated Renal Function Biomarkers.” *Advanced Materials*, **2024**, 2402479 (2024).
3. Yuting Peng, Yan Dai, Shu Zhang, Jie Deng, **Xun Jia**, “Joint k - ω Space Image Reconstruction and Data Fitting for Chemical Exchange Saturation Transfer Magnetic Resonance Imaging”, *Tomography*, **10**, 1123 (2024).
4. Yin Gao, Yang Kyun Park, **Xun Jia**, “Human-like Intelligent Automatic Treatment Planning of Head and Neck Cancer Radiation Therapy,” *Phys. Med. Biol.*, **69**, 115049 (2024).
5. William T. Hrinivich, Mahasweta Bhattacharya, Todd McNutt, Xun Jia, Heng Li, Daniel Y. Song, Junghoon Lee, “Clinical VMAT machine parameter optimization for localized prostate cancer using deep reinforcement learning,” *Med. Phys.*, **51**, 3972 (2024).
6. Yin Gao, Yesenia Gonzalez, Chika Nwachukwu, Kevin Albuquerque, **Xun Jia**, “Quantifying Physician’s Preference in Treatment Plan Approval for High-Dose-Rate Brachytherapy of Cervical Cancer using Adversarial Deep Learning,” *Phys. Med. Biol.*, **69**, 095010 (2024).
7. Giovanni Mettivier, Youfang Lai, **Xun Jia**, Paolo Russo, “Virtual clinical trial for 3D dosimetry with three cone beam breast computed tomography scanners using a fast GPU based Monte Carlo code,” *Phys. Med. Biol.*, **69**, 045028 (2024).

8. Xiaoyu Hu, **Xun Jia**, “Spectral CT image reconstruction using a constrained optimization approach — An Algorithm for AAPM 2022 Spectral CT Grand Challenge and Beyond,” *Med. Phys.*, **51**, 3376 (2024).
9. Jace Grandinetti, Yuncheng Zhong, Yuting Peng, **Xun Jia**, “Design and construction of gradient coils for an MRI-guided small animal radiation platform,” *Heliyon*, **10**, e26251 (2024).
10. Amir Owringi, Astrid Medrano, Yin Gao, Samaneh Kazemifar, Brian Hryuschko, Paul Medin, Chika Nwachukwu, **Xun Jia**, Kevin Albuquerque, “Definitive Radiation for Advanced cervix cancer is not associated with Vaginal shortening – a prospective Vaginal length and dose correlation,” *Brachytherapy*, **23**, 136 (2024).
11. Lingshu Yin, Umezawa Masumi, Kan Ota, Daniel Sforza, Devin Miles, Mohammad Rezaee, John W. Wong, **Xun Jia**, Heng Li, “Feasibility of synchrotron-based ultra-high dose rate (UHDR) proton irradiation with pencil beam scanning for FLASH research,” *Cancers*, **16**, 221 (2024).
12. Jingying Lin, Mingli Chen, Youfang Lai, Zipalkumar Trivedi, Junjie Wu, Tim Foo, Yesenia Gonzalez, Robert Reynolds, Justin Park, Yulong Yan, Andrew Godley, Steve Jiang, **Xun Jia**, Mu-Han Lin, Arnold Pompos, and Weiguo Lu. “ART2Dose: A comprehensive dose verification platform for online adaptive radiotherapy,” *Med. Phys.*, **51**, 18 (2024).

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14. Yin Gao, Chenyang Shen, **Xun Jia**, Yang Kyun Park, “Implementation and Evaluation of an Intelligent Automatic Treatment Planning Robot for Prostate Cancer Stereotactic Body Radiation Therapy,” *Radiotherapy and Oncology*, **184**, 109685 (2023).
15. Bryan Dinh, Satzhan Sitmukhambetov, Youfang Lai, Zui Pan, **Xun Jia**, Yujie Chi, “Development and Implementation of a Metaphase DNA Model for Ionizing Radiation Induced DNA Damage Calculation,” *Phys. Med. Biol.*, **68**, 014001 (2023).

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16. Jace Grandinetti, Yin Gao, Yesenia Gonzalez, Jie Deng, Chenyang Shen, **Xun Jia**, “MR Image Reconstruction from Undersampled Data for Image-Guided Radiation Therapy using a Patient-Specific Deep Manifold Image Prior,” *Frontiers in Oncology*, **12**, 1013783 (2022).
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20. Youfang Lai, Yujie Chi, **Xun Jia**, “Mechanistic Modelling of Oxygen Enhancement Ratio of radiation via Monte Carlo simulation-based DNA damage calculation,” *Phys. Med. Biol.*, **67**, 175009 (2022).
21. Paul D’Cunha, Yesenia Gonzalez, Chika Nwachukwu, Brian Hryuschko, Thomas Banks, Amir Owringi, **Xun Jia**, Kevin Albuquerque, “Change in Image-guided Planning Strategies Over Time Impacts Oncologic and Survival Outcomes for Intracavitary Cervical Cancer Brachytherapy,” *Brachytherapy*, **21**, 668 (2022).

22. Huan Liu, Chenyang Shen, Peter Klages, Kevin Albuquerque, Chang-Ming Ma, **Xun Jia**, “Interactive Treatment Planning in High Dose-Rate Brachytherapy for Gynecological Cancer”, *Mathews Journal of Cancer Science*, **7**, 31 (2022).
23. Yin Gao, Chenyang Shen, Yesenia Gonzalez, **Xun Jia**, “Modeling Physician’s Preference in Treatment Plan Approval of Stereotactic Body Radiation Therapy of Prostate Cancer”, *Phys. Med. Biol.*, **67**, 115012 (2022).
24. Damon Sprouts, Chao Wang, **Xun Jia**, Chenyang Shen, Yujie Chi, “The Development of a Deep Reinforcement Learning Based, Clinical Treatment Planning System Adapted Virtual Treatment Planner,” *Biomedical Physics & Engineering Express*, **8**, 045008 (2022).
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27. Chao Wang, Hyunuk Jung, Ming Yang, Chenyang Shen, **Xun Jia**, “Simultaneous Image Reconstruction and Element Decomposition for Iodine Contrast Agent Visualization in Multi-energy Element-resolved Cone Beam CT,” *Special issue on Dual-energy/spectral CT in Radiation Therapy, Frontiers in Oncology*, **12** 827136 (2022).
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42. Hugh Lee, Xinhui Duan, Yang-Kyun Park, **Xun Jia**, Steve B. Jiang, Ming Yang, “Convolutional neural network based proton stopping-power-ratio estimation: a feasibility study,” *Phys. Med. Biol.*, **65**, 215060 (2020).
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56. Hyunuk Jung, Chenyang Shen, Yesenia Gonzalez, Kevin Albuquerque, **Xun Jia**, “Deep-learning Assisted Automatic Digitization of Interstitial Needles in 3D CT Image based High Dose-rate Brachytherapy of Gynecological Cancer,” *Phys. Med. Biol.*, **64**, 215003, (2019).
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63. Heui Chang Lee, Bin Li, Xinhui Duan, Linghong Zhou, **Xun Jia**, Ming Yang, “Systematic analysis of the impact of imaging noise on dual-energy CT-based proton stopping-power-ratio estimation,” *Med. Phys.*, **46**, 2251 (2019).
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65. Dan Nguyen, **Xun Jia**, David Sher , Mu-Han Lin , Zohaib Iqbal , Hui Liu , Steve Jiang, “Three-Dimensional Radiotherapy Dose Prediction on Head and Neck Cancer Patients with a Hierarchically Densely Connected U-net Deep Learning Architecture,” *Phys. Med. Biol.*, **64**, 065020 (2019).
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