



ICCR

2024

XXth International Conference on the use of Computers in Radiation therapy



Pocket Program

8 - 11 **July** 2024
Lyon - France
20th edition



www.iccr2024.org

Welcome to Lyon for the long-awaited XXth International Conference on the use of Computers in Radiation therapy, ICCR 2024.

Held every 2-3 years since 1966 in Cambridge, the ICCR conference series has a unique place among scientific congresses, witnessing several pivotal advancements in the use of computers in radiation therapy. The XXth edition will cover key topics such as treatment planning optimisation, dose calculation, image reconstruction, registration and segmentation, using the latest progresses in artificial intelligence such as predictive, generative and large language models. It should therefore provide a snapshot of today's landscape of radiation therapy which is rapidly evolving in clinical practice for the benefit of patients.

After the pandemic break, this new edition will host about 400 participants from 33 countries, with three renowned keynote speakers, 10 invited speakers, 4 teaching sessions, 118 oral presentations, 140 posters and, last but not least, one debate. Many thanks to all authors and all members of the scientific committee who have reviewed and scored all the submissions. We are also grateful to our sponsors without whom this conference would not be possible. The local organising committee has been preparing the conference with valuable insights and support from organisers of the previous ICCRs.

We look forward to this exciting program. *Bienvenue à Lyon !*

David Sarrut & Simon Rit

Organization

Co-Chairs

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Simon Rit, *CNRS*, FRANCE

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	Monday, July 8	Tuesday, July 9	Wednesday, July 10	Thursday, July 11
08:00	Auditorium Lumière Registration	Auditorium Lumière Teaching Image registration	Auditorium Lumière Teaching Image segmentation	Auditorium Lumière Room Rhône 3
08:30				
09:00		Session (6 talks) Rising Stars Competition	Keynote Harini Veeraraghavan	Invited Jan-Jakob Sonke
09:30	Official Opening			Natalia Silvis-Cividjian
10:00	Keynote Irène Buvat	Supported by 	Session (4 talks) Open Source Software	Session (6 talks) Image Reconstruction and Generative Models
10:30	Break	Break	Break	Prediction Models II
11:00	Session (7 talks) Treatment Planning and Dose Monitoring	Invited Guillaume Landry	Session (7 talks) Dose Calculation	Break
11:30		Invited Salim Si-Mohamed	Session (7 talks) Treatment Planning	
12:00		Session (5 talks) Breathing Motion	Session (5 talks) Internal Radiation Therapy	Keynote Gaël Varoquaux
12:30	Lunch Break	Lunch Break	Lunch Break	Closing, next ICCR
13:00				Lunch Boxes
13:30				

09:30 - 09:45: Official Opening *Simon Rit, David Sarrut*

Keynote Speaker

Auditorium Lumière

Co-chairs: Simon Rit, David Sarrut

09:45 - 10:30: Are We Ready to Use Radiomics and AI for Patient Management in Radiation Oncology?
Irène Buvat

Coffee Break

Treatment Planning and Dose Monitoring

Auditorium Lumière

Co-chairs: Peter Remeijer, Wolfgang Tomé

11:00 - 11:15: Treatment Error Classification With Time-Resolved EPID Images With Multiple Instance Learning. *Vyacheslav Yarkin, E. De Jong, R. Hendrix, F. Verhaegen, C. Wolfs*

11:15 - 11:30: A Novel Iterative Reconstruction Algorithm for Imaging of Multi-Field Proton Treatments With PET. *Keegan McNamara, M. Béguin, G. Disertori, J. Flock, C. Fuentes, J. Hrbacek, D.C. Weber, S. Makkar, C. Ritzer, C. Winterhalter*

11:30 - 11:42: Evaluation of Algorithms for Dose Reconstruction From Prompt-Gamma Radiation in Proton Therapy. *Beatrice Foglia, C. Gianoli, T. Masuda, E. De Bernardi, T. Bortfeld, K. Parodi, M. Pinto*

11:42 - 11:54: An Analytical Approach to Predict 3D Positron Emitter Distribution in Carbon Ion Therapy. *Tianxue Du, J. Bauer, K. Parodi, M. Pinto*

11:54 - 12:06: Simultaneous Optimization of Multiple Plans Within One Treatment Course for Temporally Feathered Radiation Therapy. *Jenny Bertholet, J. Arnold, C. Zhu, G. Guyer, S. Mueller, M.F.M. Stampanoni, P. Manser, M.K. Fix*

12:06 - 12:18: The Relationship Between Treatment Plan Complexity and Dosimetry Quality: An Analysis of Three Stereotactic Treatment Planning Challenges. *Nick Hardcastle, M. Gaudreault, A. Moore, B. Nelms, J. Saez, V. Hernandez*

Image Segmentation I

Room Rhône 3

Co-chairs: Andre Dekker, Gerd Heilemann

11:00 - 11:15: Feasibility of Training Federated Deep Learning Oropharyngeal Primary Tumour Segmentation Models Without Sharing Gradient Information. *L. Volmer, A. Choudhury, A. Lobo Gomes, A. Dekker, Leonard Wee*

11:15 - 11:30: Follow the Leader - a General Template-Guided Deep Learning Framework for Adaptive Radiotherapy Target Delineation. *M. Kazemimoghadam, Qingying Wang, M. Chen, X. Gu, W. Lu*

11:30 - 11:42: Clarifying the Dosimetric Impact of Autosegmentation Inaccuracies. *Joëlle Van Aalst, T. Janssen, I. Van Bruggen, J. Wolterink, R. Steenbakkers, S. Both, J. Langendijk, C. Brouwer*

11:42 - 11:54: Team Work Makes the Dream Work: An Ensemble Learning Approach for Segmentation With Convolutional Neural Networks and Vision Transformers. *Anne Andresen, S. Lucakova, Y. Lassen-Ramshad, C.R. Hansen, N. Vatterodt, J. Kallehaug*

11:54 - 12:06: Data Harvesting vs Data Farming: A Study of the Importance of Variation vs Sample Size in Deep Learning-Based Auto-Segmentation for Breast Cancer Patients. *Emma Skarsø Buhl, E. Maae, L. Wichmann Matthiessen, M. Holck Nielsen, M. Maraldo, M. Møller, S. Elleberg, S. Aziz-Jowad Al-Rawi, B. Vrou Offersen, S. Korreman*

12:06 - 12:18: Development and External Validation of a DL-Based CTV Segmentation Model on a Large Multicentric Dataset in the Case of Whole-Breast Radiotherapy Treatment. *Maria Giulia Ubeira Gabellini, G. Palazzo, M. Mori, A. Tudda, L. Rivetti, E. Cagni, R. Castriconi, V. Landoni, E. Moretti, A. Mazzilli, C. Oliviero, L. Placidi, G. Rambaldi Guidasci, C. Riani, A. Fodor, N.G. Di Muzio, R. Jeraj, A. Del Vecchio, C. Fiorino*

12:18 - 12:30: Addressing the Gap in Oncologist Training: Generating Clinically Realistic, Suboptimal Dose Distributions Through Geometry Aware Convolutions. **Skylar Gay**, *M. Gronberg, R. Mumme, C. Chung, M. Khan, C. Pinnix, S. Shete, B. Parker, T. Netherton, C. Cardenas, L. Court*

Lunch Break

Invited Speaker

Auditorium Lumière

Co-chairs: Angela Davey, Stine Korreman

14:00 - 14:30: Opportunities With High Quality Real World Research. **Corinne Faivre-Finn**

Prediction Models I

Auditorium Lumière

Co-chairs: Angela Davey, Stine Korreman

14:30 - 14:42: Virtual Patient-Specific Quality Assurance: a Prospective Two-Year Analysis. **Alon Witztum**, *P. Wall, E. Hirata, G. Valdes*

14:42 - 14:54: Model Size Reduction in CNNs Through Sparse Regularization: Balancing Efficiency and Diagnostic Accuracy in Medical Imaging. **Carlos Garcia Fernandez**, *W. Arbelo-Gonzalez, J. Friedman, G. Valdes*

14:54 - 15:06: The Implementation of Gaussian Process Regression to Inform Voxel-Based Analysis When Dealing With Sparse and Irregular Time-Series Longitudinal Data. **Jane Shortall**, *E. Vasquez Osorio, A. Green, D. Wong, T. Puri, P. Hoskin, A. Choudhury, M. Van Herk, A. McWilliam*

15:06 - 15:18: Voxel-Wise Causal Inference to Detect Location and Dose-Response of Organs at Risk in Lung Cancer. **Marcel Van Herk**

15:18 - 15:30: Pelvic Bone Marrow Dose-Volume Predictors of Late Lymphopenia Following Pelvic Lymph Node Radiation Therapy for Prostate Cancer. **M. Pavarini**, *L. Alborghetti, S. Aimonetto, A. Maggio, V. Landoni, P. Ferrari, A. Bianculli, E. Petrucci, A. Cicchetti, B. Farina, P. Salmoiraghi, E. Moretti, B. Avuzzi, T. Giandini, F. Munoz, A. Magli, G. Sanguineti, J.M. Waskiewicz, L. Rago, D. Cante, G. Girelli, V. Vavassori, N.G. Di Muzio, T. Rancati, C. Cozzarini, Claudio Fiorino*

Coffee Break

12:18 - 12:30: Leveraging Network Uncertainty to Identify Regions in Rectal Cancer CTV Auto-Segmentations Likely Requiring Manual Edits. **Federica Carmen Maruccio**, *R. Simões, C. Brouwer, J.-J. Sonke, T. Janssen*

Invited Speaker

Room Rhône 3

Co-chairs: Kristy Brock, Jamie McClelland

14:00 - 14:30: Deep Learning in MRI-Guided Radiation Therapy. **Xiaofeng Yang**

Image Registration

Room Rhône 3

Co-chairs: Kristy Brock, Jamie McClelland

14:30 - 14:42: Inter-Patient Registration Methods for Voxel-Based Analysis in Lung Cancer. **Chloe Min Seo Choi**, *J. Jiang, M. Thor, J. Deasy, H. Veeraghavan*

14:42 - 14:54: Modelling Progressive Anatomical Changes and Their Variability During Radiotherapy Treatment. **Poppy Nikou**, *E.M. Vasquez Osorio, M. Van Herk, T. Guerrero Urbano, A. Thompson, A. Nisbet, S. Gulliford, J. McClelland*

14:54 - 15:06: An Anatomically-Informed Correspondence Initialisation Method to Improve Learning-Based Registration for Radiotherapy. **Edward G. A. Henderson**, *M. Van Herk, A.F. Green, E.M. Vasquez Osorio*

15:06 - 15:18: DiffuseRT: Learning Likely Deformations of Head and Neck Radiotherapy Patients From Data. **Luciano Rivetti**, *A. Smolders, N. Vatterodt, S. Korreman, A. Lomax, M. Sharma, A. Studen, D. Weber, F. Albertini, J. Robert*

15:18 - 15:30: Choice of Colourmaps for Radiotherapy. **Alex Davies**, *M. Fleckney, M. Van Herk*

Radiomics and Voxel-Based-Analysis

Auditorium Lumière

Co-chairs: *Mathieu Hatt, Charlotte Robert*

16:00 - 16:15: Genetically-Based Analysis of Dose Surface Maps for Assessing Toxicity Post-RT. **Tiziana Rancati**, E. Gioscio, M.C. Massi, N. Rares Franco, P. Seibold, B. Avuzzi, A. Cicchetti, A. Choudhury, B. Rosenstein, D. Azria, D. De Ruyscher⁹, M. Lambrecht, E. Sperk, C. J Talbot, A. Vega, L. Velde-man, A. Webb, P. Zunino, A.M. Paganoni, F. Ieva, A. Manzoni, S.L. Kerns, A. Dunning, J. Chang-Claude, C.L. West

16:15 - 16:27: Prediction of Survival Outcomes and Relevant Tumor Immune Infiltrates Using Radiomic Network Analysis. **Jung Hun Oh**, A. Apte, H. Veer-araghavan, A. Shukla-Dave, J. Deasy

16:27 - 16:39: Radiomic Extraction and Analysis for DICOM Images to Refine Objective Quality Control (READII-2-ROQC): An Open-Source Foundation for Head and Neck Radiomics. **K.L. Scott, Sejin Kim**, J.J. Joseph, M. Boccalon, M. Welch, M. Alim, U. Yousafzai, I. Smith, C. McIntosh, K. Rey-McIntyre, S.H. Huang, T. Patel, T. Tadic, B. O'sullivan, S.V. Bratman, A.J. Hope, B. Haibe-Kains

16:39 - 16:51: Predicting Radiation Pneumonitis Using Pre-Radiotherapy CT Scans by Radiomic and a Pre-Trained CNN Based Feature Extraction. **Matthew Gül**, W. Nailon, S. Harrow, P. Murray, S. Campbell, A.W. Yong, J. Murchison, G. Ritchie, S. Marshall

16:51 - 17:03: Integrating Radiomics Harmonization and Deep Survival Analysis for Enhanced Predictive Modeling in a Multicentric Context. **Nassib Abdallah**, J.-M. Marion, P. Chauvet, C. Tauber, T. Carlier, M. Hatt

17:03 - 17:15: Can Bootstrapping Increase Robustness of Voxel-Based-Analysis? **Alan McWilliam**, M. Van Herk, C. Pratt, E.M. Vasquez Osorio

Hadrontherapy Planning

Room Rhône 3

Co-chairs: *Francesca Albertini, George Dedes*

16:00 - 16:15: Trading Robustness? Introducing Total Variance Objectives to Pareto Surface Approximation Techniques for Radiotherapy. **R. Cristoforetti**, P. Süß, **Niklas Wahl**

16:15 - 16:27: Mid-Range Proton Arc Therapy. **Qingying Wang**, M. Chen, M. Kazemimoghadam, X. Gu, W. Lu

16:27 - 16:39: From Concept to Clinic: How Our In-House Automated Planning System Augmented the Commercial TPS for Treating Over 10,000 Patients. **Masoud Zarepisheh**, G. Jhanwar, Y. Zhou, Q. Huang, H.D. Pham, J. Yang, L. Cervino, J.M. Moran, J.O. Deasy, L. Hong

16:39 - 16:51: Fully-Automated Integrated Multi-Criterial Optimisation of Transmission Pencil Beams in IMPT for Penumbra Sharpening. **Wens Kong**, M. Huiskes, S. Habraken, E. Astreinidou, C. Rasch, B. Heijmen, S. Breedveld

16:51 - 17:03: Interactive Dose Modification: a Novel Approach to Proton Beam Therapy Treatment Planning. **Matthew Lowe**

17:03 - 17:15: Simultaneous Reduction of Number of Spots and Energy Layers in Intensity Modulated Proton Therapy for Rapid Spot Scanning Delivery. **Anqi Fu**, V. Taasti, M. Zarepisheh

Poster Session, Odd IDs (page 19)

Welcome Reception

Teaching Speaker

Auditorium Lumière

Co-chairs: Vincent Jaouen, Greg Sharp

08:00 - 09:00: Is Learning Based Image Registration Really the Future? *Jamie McClelland*

Rising Stars Competition

Auditorium Lumière

Co-chairs: Magdalena Bazalova, Marc Kessler

09:00 - 09:15: Quantifying Changes in Ventilation for Photon- and Proton-Treated Patients According to Dose and Pneumonitis Development. *Rebecca Lim, T. Tang, A. Castelo, C. O'connor, Y. He, Z. Liao, R. Mohan, K. Brock*

09:15 - 09:30: Introducing a Co-Creation Design Methodology for AI-Based Error Detection in Radiotherapy. *Luca Heising, F. Verhaegen, V. Mottarella, Y.-H. Chong, M. Zamburlini, B. Nijsten, A. Swinnen, M. Öllers, M. Jacobs, C. Ou, C. Wolfs*

09:30 - 09:45: Dose Driven Gaze Optimization in Ocular Proton Therapy. *Daniel Björkman, R. Via, T. Lomax, M. De Prado, A. Pica, G. Baroni, D.C. Weber, J. Hrbacek*

09:45 - 10:00: Neural Graphics Primitives-Based Deformable Image Registration for On-the-Fly Motion Extraction. *Xia Li, F. Zhang, M. Li, D. Weber, A. Lomax, J. Buhmann, Y. Zhang*

10:00 - 10:15: Robust Optimization for Contouring Uncertainties in Adaptive Radiation Therapy. *Ivar Bengtsson, A. Smolders, A. Forsgren, A. Lomax, D. Weber, A. Fredriksson, F. Albertini*

10:15 - 10:30: Short-Term Mortality Prediction in SIII NSCLC: What Do Clinicians Want and Can Models Provide It? *Matt Craddock, A. Abravan, A. McWilliam, C. Faivre-Finn, G. Price*

Coffee Break

Invited Speaker

Auditorium Lumière

Co-chairs: Jenny Bertholet, Jan-Jakob Sonke

11:00 - 11:30: AI for Motion Management. *Guillaume Landry*

Breathing Motion

Auditorium Lumière

Co-chairs: Jenny Bertholet, Jan-Jakob Sonke

11:30 - 11:42: Deep Learning Autosegmentation Performance on Mid-Position and Time-Averaged Lung CT Scans. *J. Brunekreef, Jan-Jakob Sonke*

11:42 - 11:54: Surrogate-Optimized Respiration Motion Model to Estimate Motion for Each Projection of 3D CBCT Scan. *Yuliang Huang, K. Thielemans, J. McClelland*

11:54 - 12:06: Monte Carlo Robustness Analysis of Breath-Hold and Free-Breathing Photon and Proton Treatments of Small Lung Tumors Using Poisson Displacement Fields. *Nils Olovsson, K. Wikström, A. Flejmer, A. Ahnesjö, A. Dasu*

12:06 - 12:18: Real-Time CBCT Imaging via a Single Arbitrarily-Angled X-Ray Image Using a Joint Dynamic Reconstruction and Motion Estimation (DREME) Framework. *Hua-Chieh Shao, T. Mengke, T. Pan, Y. Zhang*

Teaching Speaker

Room Rhône 3

Co-chairs: Nicolas Arbor, Chengchen Zhu

08:00 - 09:00: Dose Computation: Methods and Algorithms. *Jean-Michel Letang*



Invited Speaker

Room Rhône 3

Co-chairs: Philippe Després, Ane Etzebest

11:00 - 11:30: Principle, Technology and Cutting-Edge Applications of Spectral CT Imaging. *Salim Si-Mohamed*

Internal Radiation Therapy

Room Rhône 3

Co-chairs: Philippe Després, Ane Etzebest

11:30 - 11:42: Reconstruction of Time-Activity Curves in MRT Therapy Using Bayesian Unfolding. *Francesca Nicolanti, C. Mancini Terracciano, R. Faccini, E. Solfaroli Camillocci, S. Morganti, R. Mirabelli, L. Campana, F. Collimati*

11:42 - 11:54: Rapid Auto-Planning for Cervical Brachytherapy: Direct Dwell Time vs. Dose Prediction With Deep Learning Networks. *Lance Moore, K. Kallis, K. Kisling, N. Vasconcelos, S. Meyers*

11:54 - 12:06: Near-to-Target Organs-at-Risk Segmentation in Cervical High Dose-Rate Brachytherapy via Deep Learning. *Ruiyan Ni, E. Chuk, K. Han, J. Croke, A. Fyles, J. Lukovic, M. Milosevic, B. Haibe-Kains, A. Rink*

12:06 - 12:18: Automatic Target Propagation Strategies for MRI-Guided Cervical Brachytherapy. *Rita Simões, E.E. Schaake, E.C. Rijkman, M.E. Nowee, T.M. Janssen*

12:18 - 12:30: Enhancing Clinical Utility of 0.55T 4DMRI in Radiotherapy Planning: Exploring Compressed Sensing, Denoising, and Auto-Segmentation. *Austen Curcucu, Y.H. Yoon, S. Marasini, H.M. Gach, J. Pang, X. Li, X. Miao, J.S. Kim, T. Kim*

12:18 - 12:30: Geant4 Simulation of DNA Damage Surrounding a DaRT Seed. *Laura Ballisat, C. De Sio, L. Beck, S. Guatelli, D. Sakata, Y. Shi, J. Duan, J. Velthuis, A. Rosenfeld*

Lunch Break

Poster Session, Even IDs (page 23)

Keynote Speaker

Auditorium Lumière

Co-chairs: David Jaffray, Greg Sharp

15:45 - 16:30: 25 Years of Adaptive Radiotherapy: Now? *Kristy K. Brock*

Where Can Computers Take Adaptive Radiotherapy

Image Segmentation II

Auditorium Lumière

Co-chairs: Charlotte Brouwer, Catherine Coolens

16:30 - 16:45: Segment Anything Model for Head and Neck Tumor Segmentation With CT, PET and MRI Multi-Modality Images. *Jintao Ren, M. Ras-mussen, J. Nijkamp, J. Eriksen, S. Korreman*

16:45 - 17:00: Test-Time Adaptation for Medical Image Segmentation Based on a Joint Framework With an Adaptive Wavelet-VNet and a Refine Model (WaVNet-Refine). *X. Qian, You Zhang*

17:00 - 17:12: MAGIC: Multitask Adversarial Generator of Images and Contours From CBCT for Adaptive Radiotherapy. *A. Szmul, K. Thippu Jayaprakash, R. Jena, A. Hoole, C. Veiga, Y. Hu, Jamie R. McClelland*

17:12 - 17:24: Improving Clinical Target Volume Segmentation Throughout a Gastric Cancer Radiotherapy Clinical Trial. *Phillip Chlap, M. Lee, T. Leong, M. Field, J. Dowling, H. Min, J. Chu, J. Tan, P.K. Tran, T. Kron, A. Haworth, M.A. Ebert, S.K. Vinod, L. Holloway*

17:24 - 17:36: OAR-Weighted Dice Score: A Spatially Aware, Radiosensitivity Aware Metric for Target Structure Contour Quality Assessment. *Lucas McCul-tum, K. Wahid, B. Marquez, C. Fuller*

17:36 - 17:48: Towards Automatic Identification of Missing Tissues Using a Geometric-Learning Correspondence Model. *Eliana M Vasquez Osorio, E. Henderson*

17:48 - 18:00: Fully Automatic Flap Segmentation Through Deep Learning Methods to Refine Head and Neck Cancer Postoperative Radiotherapy, a GORTEC Study. *J. Thariat, Zacharia Mesbah, Y. Chahir, A. Fathallah, V. Bastit, I. Breuskin, A. Beddok, A. Blache, J. Bourhis, M. Hatt, R. Modzelewski*

Radiobiology and Microscopic Disease

Room Rhône 3

Co-chairs: Sarah Gulliford, Lydia Maigne

16:30 - 16:45: A Rat Model of Lymphocyte Recirculation and the Effect of Irradiation. *Chris Beekman, N. Carrasco-Rojas, J. Withrow, W.E. Bolch, H. Pa-ganetti*

16:45 - 17:00: An AI-Based Approach for Modeling the Synergy Between Radiotherapy and Immunotherapy. *Hao Peng, C. Moore, Y. Zhang, D. Saha, S. Jiang, R. Timmerman*

17:00 - 17:12: Integration of White Matter Tracts in Stereotactic Brain Radiotherapy Treatment Planning With a Fully Automated Atlas-Based Pipeline. *Sophie Bockel, M. El Aichi, R. Sun, N. Benzazon, A. Carré, F. De Kermenguy, E. Deutsch, C. Robert*

17:12 - 17:24: Comparison of Geant4-DNA and RI-TRACKS/RITCARD: Microdosimetry, Nanodosimetry and DNA Break Predictions. *V. Levrague, Rachel Delorme, M. Roccia, N.H. Tran, S. Incerti, M. Beuve, E. Testa, I. Plante, S. Rahmanian, F. Poignant*

17:24 - 17:36: Whole-Body Blood Circulation Modeling and Dose to Circulating Blood in Intensity Modulated Radiation Therapy. *Bingqi Guo, P. Xia*

17:36 - 17:48: Using Fluid Flow Simulations to Model Microscopic Tumor Invasion in Muscle Tissue for Radiotherapy Treatment. *Gregory Buti, A. Aj-dari, Y.-L. Chen, C. Bridge, G. Sharp, T. Bortfeld*

17:48 - 18:00: Characterization of Acute Radiation-Induced Vascular Changes in Brain Tumors Using Wavelet-Based Analysis of Dynamic-Contrast-Enhanced MRI Information. *Hassan Bagher-Ebadian, S.L. Brown, T.N. Nagaraja, P. Acharya, J.R. Ewing, I.J. Chetty, B. Movsas, K. Thind*

Teaching Speaker

Auditorium Lumière

Co-chairs: Charlotte Brouwer, Charlotte Robert

08:00 - 09:00: Is the Problem of Medical Image Segmentation a Thing of the Past? **Olivier Bernard**

Teaching Speaker

Room Rhône 3

Co-chairs: Philippe Despres, Juliette Thariat

08:00 - 09:00: Artificial Intelligence for Treatment Verification in External Beam Radiotherapy. **Cecile Wolfs**

Keynote Speaker

Auditorium Lumière

Co-chairs: Joe Deasy, Claudio Fiorino

09:00 - 09:45: Developing and Deploying Trustworthy AI Models for Cancer Treatments. **Harini Veer-araghavan**

Open Source Software

Auditorium Lumière

Co-chairs: Hermann Fuchs, Julien Jomier

09:45 - 09:57: OpenTPS: an Open-Source Treatment Planning System to Foster Research and Innovation. **Ana María Barragan Montero, D. Dasnoy, S. Wuyckens, W. Zhao, E. Peeters, R. Schyns, M. Huet Dastarac, E. Löyen, G. Rotsart De Hertaing, G. Janssens, V. Hamaide, S. Deffet, K. Souris, E. Sterpin, B. Macq, J. Lee**

09:57 - 10:09: GATE 10: A New Versatile Python-Driven Geant4 Application for Medical Physics. **N. Krah, L. Maigne, M. Favoretto, A. Resch, C. Triglia, G. Mummaneni, E. Roncali, M. Jacquet, T. Baudier, A. Pereda, H. Fuchs, A. Coussat, David Sarut**

10:09 - 10:21: PortPy: An Open-Source Initiative for Radiotherapy Treatment Planning Optimization Including Benchmark Data and Algorithms and Integration With Commercial TPS. **G. Jhanwar, M. Tefagh, Q. Huang, V.T. Taasti, S. Tuomaala, S. Nadeem, Masoud Zarepisheh**

10:21 - 10:33: Pylinac: An Open-Source Quality Assurance Image Analysis Engine. **James Kerns**

Coffee Break

Dose Calculation

Auditorium Lumière

Co-chairs: James Bedford, Irène Buvat

11:00 - 11:15: A Long Short-Term Memory Network-Based Proton Dose Calculation Method in a Magnetic Field. **Fan Xiao, D. Radonic, N. Wahl, L. Voss, A. Neishabouri, N. Delopoulos, S. Corradini, C. Belka, G. Dedes, C. Kurz, G. Landry**

11:15 - 11:30: Deep Learning-Based Dose Prediction for INTRABEAM. **M. Abushawish, A.V. Galapon, J.L. Herraiz, J.M. Udtas, Paula Ibanez**

11:30 - 11:42: GPU-Based Monte Carlo Method for Mixed Beam Radiation Therapy Electron Beamlet Calculation.. **Veng Jean Heng, M.-A. Renaud, J. Sentjens**

11:42 - 11:54: Revisiting Over Three Years of Clinical Application of Monte Carlo Based Patient Quality Assurance at the Maastro Proton Therapy Center. **I. Rinaldi, J. Gajewski, Angelo Schiavi, N. Krah, A. Rucinski, V. Patera, S. Nijsten**

Treatment Planning

Room Rhône 3

Co-chairs: Marie-Claude Biston, Peter Remeijer

11:00 - 11:15: Peeking Under the Hood: Addressing Biomarker-Driven Uncertainty in Machine Learning-Based Radiotherapy Personalization. **Ali Ajdari, Z. Liao, T. Bortfeld**

11:15 - 11:30: pyanno4rt: a Toolkit for Machine Learning (N)TCP Model-Based Inverse Radiotherapy Treatment Plan Optimization. **Tim Ortkamp, P. Salome, O. Jäkel, M. Frank, N. Wahl**

11:30 - 11:42: Intelligent Automatic Treatment Planning for Radiation Therapy. **Y. Gao, Y.K. Park, D. Yang, Xun Jia**

11:42 - 11:54: An Exploration of the Complexities of CTV Mapping. **Marcel Van Herk**

11:54 - 12:06: A Stochastic Model to Estimate Dose to Circulating Lymphocytes During Brain Radiotherapy. **François De Kermenguy**, *N. Benzazon, P. Maury, R. Vauclin, M. M'hamdi, V. Cifliku, E. Limkin, I. Diallo, D. Morel, C. Milewski, C. Clémenson, M. Mondini, E. Deutsch, C. Robert*

12:06 - 12:18: Deep Learning Dose Engine for Electron FLASH Radiotherapy. **Lorenzo Arsini**, *B. Caccia, A. Ciardiello, A. De Gregorio, G. Franciosini, S. Giagu, J. Humphreys, A. Muscato, A. Schiavi, C. White, M. Hagenbuchner, S. Guatelli, C. Mancini Terracciano*

12:18 - 12:30: Skin Dose in Breast Radiation Therapy: Monte Carlo Calculations From Deformed Vector Fields (DVF)-Driven CT Images. **Nicolas Arbor**, *L. Bartolucci, B. Dai, H. Elazhar, P. Galmiche, D. Jarnet, M. De Mathelin, P. Meyer, H. Seo*

Lunch Break

Invited Speaker

Auditorium Lumière

Co-chairs: John Kildea, Lei Xing

14:00 - 14:30: Fondation Model for Imaging and Radiation Therapy Applications. **Lei Xing**

Language Models and Ontologies

Auditorium Lumière

Co-chairs: Lei Xing, John Kildea

14:30 - 14:42: Enhancing Domain-Specific Knowledge of LLMs Through Retrieval Augmented Multi-Process Prompting (RAMP). **Jace Grandinetti**, *R. McBeth*

14:42 - 14:54: An Open Source PyMedPhys Harness for Interfacing MOSAIQ® With Claude®. **Stuart Swerdlhoff**, *S. Biggs*

14:54 - 15:06: Iterative Prompt Refinement for Radiation Oncology Symptom Extraction Using Teacher-Student Large Language Models. *R. Khanmohammadi, A. Ghanem, K. Verdacchia, R. Hall, M. Elshatikh, B. Movsas, H. Bagher-Ebadian, I. Chetty, M. Ghassemi, Kundan Thind*

15:06 - 15:18: A BFO-Compliant Ontology for Radiation Therapy (RTO). **Mark Phillips**, *A. Dekker, J. Bona*

11:54 - 12:06: Biologically-Guided Multi-Criteria Optimization and Exploration to Generate Clinical Plans for Functionality-Sparing Radiation Therapy Trials. **Dimitre Hristov**, *M. Kim, J.-Y. Kim, E. Kidd*

12:06 - 12:18: Deep Learning Guided Radiotherapy Modality Selection via Multi-Task Dose Prediction. **Austen Maniscalco**, *E. Mathew, D. Parsons, J. Visak, M. Arbab, P. Alluri, X. Li, N. Wandrey, M.-H. Lin, A. Rahimi, S. Jiang, D. Nguyen*

12:18 - 12:30: Producing Deliverable Treatment Plans With Deep Learning: A Fully Automated Pipeline Outside the Treatment Planning System. **Gerd Heilemann**, *T. Nyholm, G. Goldner, J. Widder, D. Georg, P. Kuess*

Invited Speaker

Room Rhône 3

Co-chairs: Thomas Kron, Cecile Wolfs

14:00 - 14:30: AI in Radiology, Some Lessons Coming From the Daily Practice. **Gérald Gaglio**

Decision Support Systems

Room Rhône 3

Co-chairs: Thomas Kron, Cecile Wolfs

14:30 - 14:42: An AI-Driven Radiation Therapy Workflow Management Platform. **Anyi Li**, *D. Rose, G. Chow, L. Cervino, J. Deasy, S. Elguindi, G. Niyazov, J. Moran, D. Pazgan-Lorenzo, E. Pinto, L. Santanam, N. Shah, P. Zhang*

14:42 - 14:54: A Mixture of Hidden Markov Models to Predict the Lymphatic Spread in Head and Neck Cancer Depending on Primary Tumor Location. **Roman Ludwig**, *J. Brönnimann, Y. Pérez Haas, E.L. Looman, P. Balermipas, S. Benavente, A. Schubert, D. Barbatei, L. Bauwens, J.-M. Hoffmann, O. Elicin, M. Dettmer, B. Pouymayou, R. Giger, V. Gregoire, J. Unkelbach*

14:54 - 15:06: Data Collection Platform for Radiation Oncology Clinical Use and Medical Research in a Multivendor Setting. **Diego García**, *D. Brito*

15:06 - 15:18: PARROT: A Web Platform for AI-Driven Radiation Therapy Planning. **Margerie Huet Dastarac**, *W. Zhao, S. Deffet, E. Longton, S. Cvilic, E. Sterpin, J. Lee, A. Barragan-Montero*

15:18 - 15:30: Patient and Public Involvement and Engagement on Natural Language Processing for Real World Cancer Medical Notes. **Wuraola Oyewusi**, E.M. Vazquez Osorio, G. Nenadic, I. Macgregor, G. Price

Coffee Break

Invited Speaker

Auditorium Lumière

Co-chairs: Natalia Silvis-Cividjian, Marcel van Herk

16:00 - 16:30: Open Source Software for the Age of Medical AI. **Julien Jomier**

Software Development and Interoperability

Auditorium Lumière

Co-chairs: Natalia Silvis-Cividjian, Marcel van Herk

16:30 - 16:45: Harnessing Radiotherapy Data for Quality Care and Outcome Research. **R. Kapoor**, William Sleeman, J. Palta

16:45 - 16:57: TrajectoryLog.NET Applications of an Integrated Trajectory Log File Analysis API. **Matthew Schmidt**, F. Marshall, S. Cradick, J. Mikell, P. Wall, N. Knutson, T. Mazur, Y. Hao

16:57 - 17:09: PARADIM: a Platform to Support Research at the Interface of AI and Medical Imaging. **Y. Lemaréchal**, G. Couture, F. Pelletier, P.-L. Asselin, R. Lefol, S. Ouellet, L. Di Schiavi Trotta, **Philippe Despres**

17:09 - 17:21: pyCERR – A Python-Based Computational Environment for Radiological Research. **Aditya P. Apte**, A. Iyer, E. Locastro, S. Elguindi, J. Jiang, J.H. Oh, H. Veeraraghavan, A. Shukla-Dave, J.O. Deasy

17:21 - 17:33: A System of Governance for Use of Scripts in a Commercial Treatment Planning System. **K. Thompson**, K. Offer, G. Osborne, C. Lawford, A. Turner, S. Porceddu, **Tomas Kron**

17:33 - 17:45: QuAAC: An Interoperable Routine Quality Assurance Data Format. **James Kerns**, R. Taylor

15:18 - 15:30: Dose Evaluation on Daily CBCTs for Breast Cancer Patients. **Peter Stijnman**, M. Groot Koerkamp, A. Houweling, C. Zachin, B. Raaymakers

Invited Speaker

Room Rhône 3

Co-chairs: Indrin Chetty, David Sarrut

16:00 - 16:30: Recent Developments of G4-Med, the Most Complete Geant4 Benchmarking System for Bio-Medical Physics Applications. **Susanna Guatelli**

Monte-Carlo Simulation

Room Rhône 3

Co-chairs: Indrin Chetty, David Sarrut

16:30 - 16:45: MCMimic: a Machine Learning Approach for Fast Prediction of Monte Carlo Proton Dose and LET. **Samuel Ingram**, K. Kirkby, R. Mackay, M. Clarke

16:45 - 16:57: Evaluation of the GATE-RTion/Geant4 Simulation Speed and Dosimetric Commissioning for Independent Dose Calculation in Carbon Ion Pencil Beam Scanning Radiotherapy. **Yihan Jia**, L. Hartl, M. Favaretto, M. Stock, L. Grevillot, A.F. Resch

16:57 - 17:09: New Global Reconstruction for Charged Particles With the FOOT Experiment. **Christian Finck**

17:09 - 17:21: Deep-Learning Powered Denoising of Monte Carlo Dose Distributions. **Hannes A. Loebner**, R. Joost, J. Bertholet, S. Mougiakakou, M.K. Fix, P. Manser

17:21 - 17:33: Development of a Range Probe to Improve Dose Delivery Accuracy in Proton Beam Therapy. **Josephine Jones**, M. Taylor, A. Aitkenhead, S. Manger

17:33 - 17:45: Implementation of the Mayo Clinic Florida Microdosimetric Kinetic Model and AMDM Into GATE/Geant4: Investigation of the Impact of Nozzle Configurations. **Hermann Fuchs**, A. Parisi, K. Furutani, D. Georg, C. Beltran

Invited Speaker

Auditorium Lumière

Co-chairs: *Guillaume Landry, Simon Rit*

09:00 - 09:30: AI Based Reconstruction. *Jan-Jakob Sonke*

Image Reconstruction and Generative Models

Auditorium Lumière

Co-chairs: *Guillaume Landry, Simon Rit*

09:30 - 09:45: Diffusion Schrödinger Bridge Models for High-Quality MR-to-CT Synthesis for Head and Neck Proton Treatment Planning. *Muheng Li, X. Li, S. Safai, D. Weber, A. Lomax, Y. Zhang*

09:45 - 09:57: Self Super-Resolution of Anisotropic Volumes in Prostate MRI With Normalized Edge Priors. *Vincent Jaouen, P.-H. Conze, J. Bert, D. Visvikis*

09:57 - 10:09: Patient-Specific Simultaneous CT and MR Reconstruction From Sparse Projection Measurements Using Implicit Neural Representation. *O. Pastor-Serrano, L. Qiu, S. Ye, Lei Xing*

10:09 - 10:21: FDDM: Unsupervised MR-to-CT Translation With a Frequency-Decoupled Diffusion Model. *Y. Li, H.-C. Shao, X. Qian, You Zhang*

10:21 - 10:33: Enhancing CBCT Image Quality Using a Novel SCT-Based Shading Correction. *Francesco Maria Russo, L. Lamminger, G. Belotti, K. Parodi, H. Deutschmann, P. Steininger*

10:33 - 10:45: Comparison of Saddle and Helical Trajectories of a Mobile Cone Beam Computed Tomography Scanner With Online Calibration Correction. *Chengtao Wei, S. Rit, M. Laurendeau, P. Steininger, F. Ginzinger, M. Riboldi, C. Kurz, G. Landry*

Invited Speaker

Room Rhône 3

Co-chairs: *Vincent Grégoire, Stephen Tozer-Loft*

09:00 - 09:30: Using STAMP to Analyze and Prevent Accidents in RT. *Natalia Silvis-Cividjian*

Prediction Models II

Room Rhône 3

Co-chairs: *Vincent Grégoire, Stephen Tozer-Loft*

09:30 - 09:45: Deep Learning-Based Normal Tissue Complication Models for Head and Neck Cancer Patients. *Lisanne V. Van Dijk, S.P.m. Vette, H. Neh, L. Van Der Hoeek, H. Chu, J.A. Langendijk, P.M.a. Ooijen, N.M. Sijtsema*

09:45 - 09:57: Causal Targeted Machine Learning for Real-World Evidence Generation in Oncology: Assessing Causal Effects of Radiation Toxicity on Overall Survival in Stage III Non-Small Cell Lung Cancer. *Rachael Phillips, T. Nano, J. Scholey, E. Gematas, N. Mohammed, J. Zeng, R. Kotesha, P. Mohindra, L. Rosen, J. Chang, H. Tsai, J. Urbanic, C. Vargas, N. Yu, L. Ungar, E. Eaton, C. Simone, M. Van Der Laan, G. Valdes*

09:57 - 10:09: Rethinking the Elective Target Volume: Modelling Bilateral Lymphatic Head and Neck Tumour Progression Using Probability Theory. *Kristoffer Moos, J. Eriksen, A. Holm, S. Korreman*

10:09 - 10:21: Three-Dimensional Visualization of DEBI-NNs for Supporting Interpretability of Predictive Models Relying on Neural Networks. *Amine Boukhari, E. Boglarka, N. Abdallah, D. Habert, C. Spielvogel, L. Papp, M. Hatt*

10:21 - 10:33: Robustness In Image-Based Data Mining: Bias In Training Data Can Affect The Identification Of Significant Regions. *Tanwiwat Jaikuna, F. Wilson, M. Van Herk, P. Hoskin, C. West, D. Azria, J. Chang-Claude, M. Carmen De Santis, S. Gutiérrez-Enríquez, M. Lambrecht, P. Seibold, E. Sperk, P. R Symonds, C. J Talbot, T. Rancati, T. Rattay, V. Reyes, B. S Rosenstein, D. De Ruysscher, A. Vega, L. Veldeman, A. Webb, M. Aznar, E. Vasquez Osorio*

10:33 - 10:45: Modelling Occult Lymph Node Metastases in HNSCC Patients With a Trinary State Hidden Markov Model. *Yoel Pérez Haas, R. Ludwig, E.L. Looman, V. Gregoire, L. Bauwens, P. Balermipas, J. Unkelbach*

Coffee Break

Thursday July 11

Debate

Auditorium Lumière

Co-chairs: Simon Rit, David Sarrut

11:15 - 12:15: Open Source Software and Open Data Is the Best Path to Clinical Translation. *Gaël Varoquaux / Marcel van Herk*

12:15 - 12:30: Closing and next ICCR *Simon Rit, David Sarrut*

Lunch Box

Monday July 8 - Posters with odd IDs

Posters with the logo  are selected for the Rising Stars competition.

- 1 Ameliorate Immune Suppression During Radiation Therapy to Advanced Stage Lung Cancer via a Predictive Algorithm. **Krishni Wijesooriya**, C. Nguyen, G. Williams, M. Baessler, C. Hodge, J. Morgan, R. Gentzler, N. Liyanage
- 3 Comparing Two Methods of Using Toxicity Outcomes to Study Dose-Response Mapping of Bladder and Rectum in Prostate Cancer Patients Undergoing Radiotherapy. **Tanuj Puri**, M. Van Herk, E. Vasquez Osorio, T. Rancati, P. Seibold, E. Gioscio, A. Green, A. P. Morris, J. Shortall, S. Kerns, D. Azria, M.-P. Farcy-Jacquet, J. Chang-Claude, A. Dunning, M. Lambrecht, B. Avuzzi, D. De Ruysscher, E. Sperk, C. Talbot, A. Webb, A. Vega, L. Veldeman, B. Rosenstein, C. West, A. Choudhury, P. Hoskin, A. McWilliam
- 5 A Technological Pipeline for Detecting Radiation-Induced Heart Damage Mechanisms and Prevent Major Cardiac Adverse Events. **Alessandro Cicchetti**, A. Catalano, S. Meroni, A. Cavallo, A. Allajbej, C. Veronese, P. Vallerio, C. Sangalli
- 7 Whole-Body Organ Dose Assessment of Cancer Patients Undergoing External Beam Radiotherapy Using Body-Size-Dependent Phantom Library for Secondary Cancer Risk Prediction. **Kyeong Hyeon Sung**, B.-W. Cheon, H.-J. Choi, S.M. Lee, S. Seong, Y. Seo, D. Kim, H.J. Choi, C.H. Min
- 9 Towards Gaussian Processes Modelling to Study the Late Effects of Radiotherapy in Children and Young Adults With Brain Tumours.. **Angela Davey**, A. Leroy, E.M. Vasquez Osorio, K. Vaughan, P. Clayton, M. Van Herk, M.A. Alvarez, M. McCabe, M. Aznar
- 11 Explainable Artificial Intelligence for the Prediction of Non-Small Cell Lung Carcinoma Recurrence. **Lorna Tu**, H. Choi, H. Clark, S. Lloyd
- 13 Is Comorbidity Associated With Interruption of Radiotherapy in Patients With HNSCC Cancer? **Golnoosh Motamedi-Ghahfarokhi**, A. Abravan, **Eliana M. Vasquez Osorio**, M. Van Herk, J. Price, H. Mistry, G. Price
- 15 Prediction of Acute Pulmonary Toxicity Events With 3D Convolutional Neural Networks From Radiotherapy Dose Maps. **Pedro Juan Soto Vega**, V. Bourbonne, W. Marchadour, G. Andrade-Miranda, F. Lucia, M. Rehn, U. Schick, D. Visvikis, F. Vermet, M. Hatt
- 17 Deep Learning Based Three-Dimensional Radiation Dose Prediction With Dose Level Guidance - a Spine SBRT Example. **Tushar Shinde**, G.A. Szalkowski, C. Chuang, L. Wang, L. Liu, S. Soltys, E. Pollom, E. Rahimy, Q.-A. Ho, N. Marianayagam, D. Park, U. Yener, A. Meola, H. Jiang, M. Chen, Z. Yang, **Weiguo Lu**, X. Gu
- 19  Can Input Reconstruction Be Used to Directly Estimate Uncertainty of a Dose Prediction U-Net Model? **Margerie Huet Dastarac**, D. Nguyen, S. Jiang, J. Lee, A. Barragan-Montero
- 21 Investigation of Unsupervised Race-Based Predictive Modeling Strategies to Improve Prediction Power of Tumor Recurrence in Head and Neck Cancer Patients in Diverse Racial Groups. H. Bagher-Ebadian, M.V. Gilbert, F. Siddiqui, B. Movsas, K. Thind, **Indrin J. Chetty**
- 23 Robust Models for Esophageal Toxicity Prediction From Radiation Dose Maps. **Matthew Gil**, W. Nailon, S. Harrow, P. Murray, S. Marshall
- 25 Improving Dose Volume Histogram (DVH) Based Analysis of Clinical Outcomes Using Modern Statistical Techniques. A Systematic Answer to Multiple Comparisons Concerns. **Mirek Fatyga**, J. Hu, J. Li
- 27 On the Implementation and Evaluation of Loss Functions for Robust Multiple Anatomy Segmentation on CT Images. C. Li, R. Ibn Sultan, H. Bagher-Ebadian, Y. Qiang, K. Thind, **Indrin Chetty**
- 29 Scripted Dosimetric Validation of AI Auto-Contouring in Prostate Radiotherapy. **Daniel Warren**, A. Chalkley, I. Stronach
- 31 Implementing a Simple, Dynamic and Controllable AI Delineation Tool in Clinical Settings. **Nis Sarup**, M. Konrad, M.L.M.L. Sevdal, S.L. Krogh, C.R. Hansen, I. Hazell, E.L. Lorenzen, C. Brink
- 33 A Robust Auto-Segmentation Approach to Accelerate Adaptive MRI-Guided Radiotherapy for Pancreatic Cancer Patients. **Mehdi Shojaei**, B. Eiben, J. McClelland, S. Nill, A. Dunlop, U. Oelfke

Monday July 8 - Posters with odd IDs

- 35 A National Infrastructure for Sharing AI Segmentation Tools. **Simon Long Krogh**, R. Zukauskaitė, E. Lorenzen, N. Sarup, M. Konrad, J.N. Drudgaard, M. Klüver-Kristensen, E. Samsøe, M. Farhadi, T.H.-B. Johansen, C. Brink, C.R. Hansen
- 37 Use of Complementary Multispectral Data for Improving the Accuracy of Deep Learning Solution for Bioluminescence Tomography Reconstruction in Glioblastoma Tumor Models. **Behzad Rezaeifar**, C. Wolfs, N. Lieuwes, R. Biemans, B. Reniers, L. Dubois, F. Verhaegen
- 39 Monte Carlo Photons Simulation From Alpha-Emitter Radionuclides. **David Sarrut**, A. Et̃x̃ebeste, J. L̃et̃ang
- 41 A Full GATE/Geant4 Model of a Helical Radiotherapy Device. **Sheraz Blas**, L. Simon
- 43 Impact of Temporal Structure of Electron, Proton and Photon on (H₂O₂) Concentration Using Monte-carlo Simulation Toolkit (TOPAS-NBio). **Mustapha Chaoui**, O. Bouhali, T. Yahya
- 45 Log File-Based Patient Specific QA Using GPU-Accelerated Monte Carlo Simulation for Proton Pencil Beam Line Scanning Therapy. **Chanil Jeon**, **Sung Hwan Ahn**, J. Shin, H. Lee, Y. Han
- 47 A Fast 3D Range-Modulator Delivery Approach: Sensitivity of the Resulting Dose Distribution on Potential Setup Misalignments. **Yuri Simeonov**, M. Krieger, M. Folkerts, G. Paquet, P. Lansonneur, P. Penchev, K. Zink, U. Weber
- 49 Benchmark of Geant4 Hadronic Models for Carbon-Therapy Within the CLINM Project. **Marie Vanstalle**, L. Gesson, C. Reibel, N. Arbor, A. Arnone, C. Finck, C. Galindo, S. Higuere, T.-D. L̃e, A. Sood, Q. Raffy, P. Peaupardin, M. Pullia
- 51 Monte Carlo Modeling of Elekta VERSA HD for Out-of-Field Dose Characterization. **Maxime Jacquet**, T. Baudier, E. Deutsch, C. Robert, D. Sarrut
- 53 Deformable Voxel Geometry for Photon and Electron Monte Carlo Dose Calculations. **Björn Zobrist**, H.A. Loebner, J. Bertholet, D. Frei, W. Volken, F. Amstutz, M.F.M. Stapanoni, P. Manser, M.K. Fix
- 55 A GPU-Based Patient-Specific CT Dosimetry Tool Combining Monte Carlo Calculations and ML-Based Segmentations. **R. Lefol**, Y. Lemar̃chal, J. Boivin, **Philippe Despres**
- 57 Accuracy Comparison Between GATE and TOPAS for 6MV Varian CLINAC IX. **Zakaria Ait Elcadi**, **Othmane Bouhali**
- 59 Can Low-Cost Magnetic Resonance Distortion Phantoms Be 3D Printed? **Haley Clark**
- 61  Automatic Contour Quality Assurance (CAT-QA) to Speed up Online Adaptive Radiotherapy. **Lisa Fankhauser**, A. Smolders, R. Bellotti, D.C. Weber, A.J. Lomax, F. Albertini
- 63 QATrack+: An Open-Source Routine Quality Assurance Platform. **R. Taylor**, **James Kerns**
- 65 Big Data Methods for CT Doses Analysis and Monitoring. **Pierre-Luc Asselin**, P. Despres, J. Boivin, Y. Lemar̃chal, G. Couture, S. Ouellet
- 67 AutoMRISimQA: an Automated System for Daily Quality Control of a 3T MRI Simulator. **A. Xing**, G. Goozee, G. Liney, S. Arumugam, S. Deshpande, A. Espinoza, A. Gray, V. Kondilis, D. Elwadia, R. Rai, **Phillip Chlap**, L. Holloway
- 69 NoPAUSE: Feasibility of a General-Purpose, Physician-Initiated Automatic VMAT Treatment Planning System for Curative Treatments.. **Nick Chng**, S. Miller, R. Olson, M. Golshan, F. Cao, Q. Matthews
- 71 A Complete Portfolio for Automated Treatment Planning for Whole Breast Radiotherapy. **Hana Baroudi**, L. Che Fru, D. Schofield, D. Roniger, D. Hancock, K. Gifford, T. Netherton, J. Niedzielski, A. Melancon, M. Muruganandham, S. Shaitelman, S. Shete, M. Mitchell, L. Court
- 73 An Open Source Multi-Criteria Optimization Framework for Radiotherapy. **Tobias Becher**, A.B.A. Bennan, R. Cristoforetti, N. Wahl
- 75 Zero Click Treatment Preparation: From CT to Plan. **Geert Wortel**, R. Simões, J. Trinks, P. Remeijer, E. Damen, M. Gooding, **Tomas Janssen**
- 77 Development of Bolus Optimization System for Electron Conformal Therapy. **Sang-Won Kang**, W. Cho, D. Kang, M.-J. Han, J.-B. Ching

Monday July 8 - Posters with odd IDs

- 79 A Python Script to Analyse Treatment Planning Throughput. **Ezhilalan Ramalingam**
- 81  Development of Dynamic Collimator Mixed Beam Radiotherapy to Explore the Dosimetric Benefits of Non-Coplanar and Mixed Photon-Electron Beam Setups. **Chengchen Zhu, G. Guyer, J. Bertholet, S. Mueller, H.A. Loebner, M.F.M. Stampanoni, M.K. Fix, P. Manser**
- 83 Online Adaptive Proton Therapy for Esophageal Cancer: Adaptation Rate and Automated Strategies Comparison. **Camille Draguet, P. Populaire, M. Chocan Vera, K. Haustermans, J.A. Lee, E. Sterpin, A. Barragan-Montero**
- 85 AI-Guided Unattended Plan Generation. **Christian Velten, M. Bowers, W. Martin, M. Garg, J. Shade, T. McNutt, W. Tomé**
- 87 Impact of Artificial Intelligence Solution Aiming to Accelerate MRI Acquisition on the Therapeutic Care in Oncology in Radiology and Radiotherapy Departments. **R. Lemaire, C. Raboutet, T. Leleu, C. Jaudet, L. Dessoude, F. Missohou, Y. Poirier, P.-Y. Deslandes, J. Lacroix, I. Moummad, S. Bardet, J. Thariat, D. Stefan, Aurélien Corroyer-Dulmont**
- 89 The Automatic Body Composition (ABC) Toolkit. **Donal McSweeney, C. Jones, M. Brown, A. Sachdeva, N. Clarke, M. Van Herk, A. McWilliam**
- 91 OSIRIS-RT : a Minimum Data Set for Data Sharing and Interoperability in Radiation Oncology. **V. Le Texier, Thomas Baudier, S. Guihard, T. Lacornierie, D. Pasquier, C. Robert**
- 93  Towards a Fully Automatic Workflow for Investigating the Dynamics of Lung Cancer Cachexia During Radiotherapy Using Cone Beam Computed Tomography. **Lars Daenen, W. Van De Worp, B. Rezaeifar, J. De Bruijn, P. Qiu, J. Webster, R. Langen, F. Verhaegen, Cecile Wolfs**
- 95  Enhancing CBCT Image Quality for Radiotherapy Using Multi-Channel CycleGAN for CBCT-to-CT Synthesis. **Chelsea Sargeant, R. Chuter, J. Shortall, A. Green, J. Bridge, P. Fendall Amaro, R. Bailey, A. McWilliam**
- 97 Evaluating Treatment Delivery Performance of SCINTIX Biology-Guided Radiotherapy Under Non-Periodic In-Treatment Motions. **Chenyang Shen, T. Banks, S. Ghimire, Y.K. Park, A. Godley, S. Jiang, B. Cai**
- 99  Detection and Correction of Rigid Patient Motion in SPECT With Exponential Data Consistency Conditions. **My Hoang Hoa Bui, A. Robert, S. Rit, E. Ane**
- 101 Preliminary Study on Residual Motion Evaluation During Breath Hold SBRT. **Weihua Mao, A. Narang**
- 103 Super Resolution Dose Calculation Via Implicit Neural Representation Based Blind Deconvolution. **S. Ye, S. Liu, Y. Gao, Lei Xing**
- 105 Evaluation of Organ Dose Reduction Effectiveness in Liver 3D/4D Computed Tomography Simulation Through Radiation Shielding: an Anthropomorphic Phantom Study. **J. Oh, M. Lee, B. Lee, D. Lee, M.-Y. Kang, S. Hong, Jun-Bong Shin**
- 107 Artificial Intelligence Dose Calculation Engine Based Pencil-Beam for Intensity Modulated Radiation Therapy. **Zirong Li, Yaoying Liu, X. Shang, H. Sheng, W. Zhao, G. Zhang, Q. Zhou, S. Xu**
- 109  Development and Evaluation of Novel Parameters for Describing Anatomical Changes and Predicting Radiotherapy Replanning for Head and Neck Cancer Patients. **Odette Rios-Ibacache, J. Manalad, A.X. Andrade Hernandez, K. O'sullivan-Steben, E. Poon, L. Galarneau, J. Kildea**
- 111 Software-Assisted Optimisation of Linear Accelerator Energy Consumption. **Genotan Reggian, C. Stanford-Edwards**
- 113 Deep Reinforcement Learning for Custom Applicator Design in Personalised High Dose Rate Brachytherapy. **Cedric Loiseau, P. Berezny, M. Silva, J. Thariat, A. Batalla**
- 115 Angle Dependence on Positional Radioisotope Source Using Monte Carlo Simulation in Brachytherapy. **Moo-Jae Han, Sang-Won Kang, W. Cho, D. Kang, Jin-Beom Jung**
- 117 State-of-the-Art of CT Enhancement Methods for RT Planning: a Review. **Özgür Özer, J. Thariat, A. Haut, D. Gibon**

Monday July 8 - Posters with odd IDs

- 119** A Tool for Individualised Dose Mapping Uncertainty Quantification in the Reirradiation Setting: Head and Neck Cancer. *Chelms Muthoni Thiong'o*
- 121** Robustness of Radiomics Features to Reconstruction Kernel Batch Effect: How Bad Is the Situation? *Elfried Salanon, A. Apte, A. Fu, U. Mahmood, B. Zehor, A. Shukla-Dave, J. Deasy*
- 123** Leveraging Hybrid FLT-PET/MR Imaging to Distinguish Tumour Progression From Radionecrosis in Brain Metastasis Patients Post-Radiosurgery. *Michael Maddalena, A. Farag, N. Sinno, P. Alcaide-Leon, B. Schultz, C. Coolens*
- 125** Towards Fast Plan Adaptation for Proton Arc Therapy. *Benjamin Roberfroid, A. Barragan, J.A. Lee, E. Sterpin*
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- 129** Inverse Robustness to Control Uncertainties in the RBE Parameter in Proton Therapy Planning. *Mara Schubert*
- 131** Machine Learning for Dose Prediction in Carbon Ion Therapy. *Miriam Schwarze, L. Thomas, H. Rabus, A. Kamal, P. Tappayuthpiparn*
- 133** Investigating Associations Between Radiomics Features and Biomarkers in an Orthotopic Non-Small Cell Lung Cancer Mouse Model. *Gabriel Giampa, R. Yadav, L. Wang, J. Kildea, M. Vallières, N. Ybarra*
- 135** Towards Patient-Specific Computational Models of Microvasculature to Investigate Radiation Toxicity. *S. Materne, Luca Possenti, A. Cicchetti, F. Pisani, A. Catalano, P. Vitullo, P. Zunino, T. Rancati*
- 137** Modeling the Geometric Distortion and Fan Beam Imaging of an On-Rails Computed Tomography Scanner for 2D/3D Registration. *Giovanni Fattori, R. Via, A.J. Lomax, S. Safai*
- 139** Bladder Cancer Hypoxia: Combining OE-MRI and Genomics for Biomarker Discovery. *Rekaya Shabbir, B.A. Telfer, B. Dickie, M. Babur, K. Williams, C.M. West, A. Choudhury, T.A. Smith*

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- 2 A Pipeline for Generating Longitudinal Head and Neck Cancer Radiotherapy Datasets for Machine Learning. **Kayla O'sullivan-Steben**, *O. Rios-Ibacache, L. Galarneau, J. Kildea*
- 4  Demonstration of Current Best Practice for Prognostic Model Validation Using the Manchester Score. **Charlie Cuniffe**, *G. Price, M. Sperrin, F. Blackhall*
- 6 A Non-Invasive and Self-Managed Microscope for Predicting Radiation-Induced Acute Toxicities in Cancer Patients. **Alessandra Catalano**, *S.V. Materne, F. Badenchini, E. La Rocca, E. Gioscio, F. Pisani, L. Possenti, B. Avuzzi, B. Noris Chioda, C. Giandini, R.R. Colciago, M.C. De Sanctis, T. Giandini, A. Cicchetti, T. Rancati*
- 8 Data Preparation Pipeline for Artificial Intelligence in Radiation Oncology: Lessons From a Large Prospective Imaging Trial. **Hannah Thomas**, *A.J. Varghese, M. Mathew, D. Devakumar, A. Irodi, J. T, T. Peace, H.F. Godson, R. Isiah, S. Pavamani*
- 10 Transfer Learning for the Detection of Lung Lesions in 18F FDG PET/CT Images Using GraphNet. **Maryam Fallahpoor**, *B. Pradhan*
- 12 Optimising Physics-Informed CRNNs for Longitudinal Volumetric Medical Image Data. **Denis Page**, *E.M. Vasquez Osorio, R. Chuter, A. Green, A. McWilliam*
- 14  i-SART: A Prototype AI-Based Tool to Enhance Patient Safety in Radiotherapy. **Anastasia Sarchosoglou**, *N. Silvis-Cividjian, Y. Zhou, P. Papavasileiou, A. Bakas, E. Pappas*
- 16 Deep Learning-Based Tumor Shape Variation Prediction of Lung Cancer Patient's Pre-Radiation Treatment Response. **Sangwoon Jeong**, *K. Yang, Y. Han, H.C. Park, S.H. Ahn*
- 18 Deep Learning for in Vivo EPID Dosimetry Classification: Relating Gamma Analysis and DVH Metrics for Lung Cancer Patients. **Femke Vaassen**, *S. Nijsten, R. Canters, F. Verhaegen, C. Wolfs*
- 20 Adaptive Radiotherapy Dose Prediction on Head and Neck Cancer Patients With a Multi-Headed U-Net Deep Learning Architecture. *H.-J. Wang, A. Maniscalco, D. Sher, M.-H. Lin, S. Jiang, Dan Nguyen*
- 22 Prediction of Stress in Radiation Therapy Patients Using Artificial Intelligence and Biological Signals. **Sangwoon Jeong**, *H. Pyo, W. Park, Y. Han*
- 24 Habitat Imaging Based on Voxel-Wise GLCM Joint Energy Clustering: Prediction of Disease-Free Survival in Localized Soft-Tissue Sarcoma.. **Benoît Alligniet**, *B. Leporq, A. Bouhamama, F. Pilleul, A. Meurgey, V. Gualter, M.P. Sunyach, W. Waissi, O. Beuf*
- 26 A Deep Learning-Driven Framework for Automatic Target Volume Localization and Delineation in Spinal Metastases Stereotactic Body Radiotherapy. **Zi Yang**, *M. Kazemimoghadam, G. Szalkowski, C. Chuang, L. Wang, L. Liu, S. Soltys, E. Pollom, E. Rahimy, H. Jiang, D. Park, A. Persad, Y. Hori, J. Fu, I. Romero, L. Zalavari, M. Chen, W. Lu, X. Gu*
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- 36 Medical Image Segmentation Assisted With Clinical Inputs via Language Encoder in A Deep Learning Framework. **Hengrui Zhao**, *B. Wang, D. Mistry, J. Wang, M. Dohopolski, D. Yang, W. Lu, Steve Jiang, Dan Nguyen*
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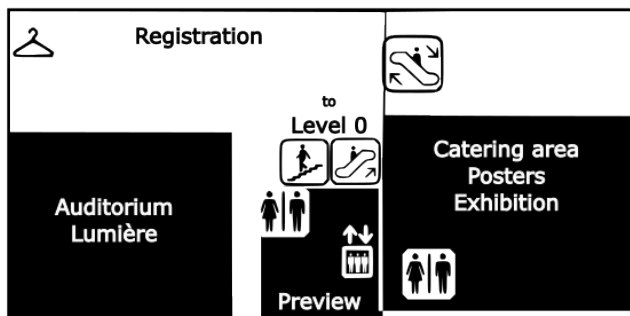
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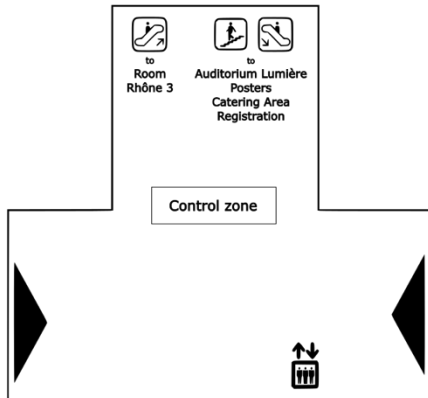
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- 132** Monte Carlo Verification of Proton Treatment Planning. *Klara Badraoui Cuprova*
- 134** RadiSeq: A Whole-Genome DNA Sequencing Simulation Pipeline to Investigate Radiation-Induced Carcinogenesis. *Felix Mathew, J. Kildea*
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- 140** Revealing Head and Neck Tumors Spatial Heterogeneity Through Quantitative MRI Protocol: Initial Findings.. *Walid Dandachly, B. Leporq, L. Sayaque, C. Miran, B. Allignet, F. Pilleul, O. Hamelin, C. Bouyer, V. Gregoire, O. Beuf*

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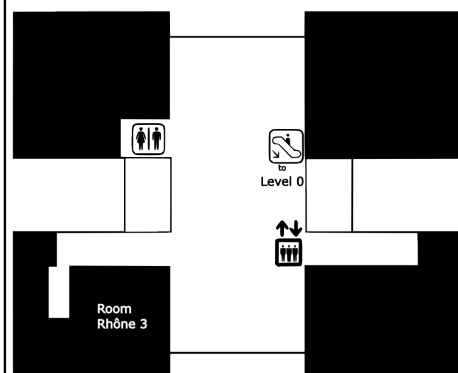
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