Dr. Vincent Wan Shun Leung, BSc (Hons), PhD

CONTACT INFORMATION

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PROFILE

Dr. Vincent W. S. Leung is an Assistant Professor of Practice at the Hong Kong Polytechnic University (PolyU) in the Department of Health Technology and Informatics (HTI). With more than a decade of experience as a radiation therapist at Princess Margaret Hospital (PMH), he also holds the position of Honorary Consultant Therapeutic Radiographer at PMH. Additionally, he serves as the Chairman of the Hong Kong Association of Radiation Therapists (HKART) and Vice Chairman of the Hong Kong Radiographers' Association (HKRA).

Since joining PolyU in 2018, Dr. Leung has been responsible for instructing both Radiography Bachelor's and Master's degree students in Medical Physics, Medical Imaging and Radiation Sciences. He is actively engaged in developing innovative teaching methods, including virtual reality, clinical blended learning and simulation, and emotional intelligence training. Dr. Leung has been awarded two HTI teaching awards (one individual, one team) and one Faculty of Health and Social Sciences teaching prize (team). His teaching philosophy is centered on providing interactive education to bridge the gap between theoretical knowledge and the clinical practice of healthcare students.

Dr. Leung holds a Doctor of Philosophy degree in radiotherapy (RT), and his research interests focus on RT planning and dosimetry, as well as the application of radiomics and artificial intelligence (AI) to RT. He was awarded the 2020 Health and Medical Research Fund (HMRF) research fellowship scheme to conduct a research project on radiomics in lung cancer. Recently, he was also awarded an internal research grant to conduct a project related to AI applications in radiotherapy. Dr. Leung has supervised three master's student projects, one on radiomics and two on radiotherapy dosimetry.

Dr. Leung remains highly engaged in the industry and is appointed Honorary Consultant Therapeutic Radiographer at PMH. His areas of clinical expertise include radiotherapy dosimetry, treatment planning, treatment delivery, simulation, and mould making. At PMH, he is responsible for conducting RT-related clinical studies and delivering continuous professional development (CPD) training. Additionally, Dr. Leung has taken part in organizing conferences for radiographers and radiation therapists in Hong Kong and Asia and was recently appointed as the organizing committee chairman for the 2024 World Congress of the International Society of Radiographers and Radiological Technologists (ISRRT), which is a highly anticipated event in the radiography community. Overall, Dr. Leung's extensive clinical experience, dedication to research, innovative teaching methods, and engagement in the industry make him a respected member of the field of radiation therapy, with a wealth of knowledge and expertise to offer.

QUALIFICATION:

2020	Doctor of Philosophy, The Hong Kong Polytechnic University *Thesis: Evaluation of the effect of beam arrangements and establishment of treatment planning models in intensity modulated radiation therapy of head and neck cancers*
2008	Bachelor of Science in Radiography (1st class honours), The Hong Kong Polytechnic University

BRIEF OUTLINE OF EXPERIENCE AND POSTS HELD:

2023 – Present	Assistant Professor of Practice, Department of Health Technology and Informatics, The Hong Kong Polytechnic University
2021 – Present	Honorary Consultant (Therapeutic Radiographer), Department of Oncology, Princess Margaret Hospital, Hong Kong
2018 – 2023	Clinical Associate, Department of Health Technology and Informatics, The Hong Kong Polytechnic University
2021 – 2022	Visiting Research Scholar, Department of Radiation Oncology, Duke University Medical Center, Durham, North Carolina, USA
2008 – 2018	Radiation Therapist, Department of Oncology, Princess Margaret Hospital, Hong Kong

PROFESSIONAL REGISTRATION:

2010 – Present	Part I (category T) of the Register of Radiographers, Radiographers Board, Hong Kong

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

2021 – Present	Chairman, Hong Kong Association of Radiation Therapists
2021 – Present	Vice-chairman, Hong Kong Radiographers' Association
2023 – Present	Member, Education Committee, Radiographers Board
2021 – Present	Member, Registration Committee, Radiographers Board
2020 – Present	Member, Task Force on Competency Document of Radiographers Board
2022 – Present	Chairman, Organizing Committee, 5th Hong Kong Radiographers and Radiation Therapists Conference
2023 – Present	Convener, 23rd International Society of Radiographers and Radiological Technologists (ISRRT) World Congress
2022 – Present	Member, Preliminary Investigation Committee, Radiographers Board
2011 – 2021	Academic Convener, Hong Kong Association of Radiation Therapists
2018 – 2019	Member, Scientific Committee, 4th Hong Kong Radiographers and Radiation Therapists Conference
2011 – 2018	Member, Allied Health Professions Staff Group Consultative Committee, Hospital Authority
2012 – 2013	Member, Organizing Committee, 1st Hong Kong Radiographers and Radiation Therapists Conference
2013 – 2015	Member, Organizing Committee, 2nd Hong Kong Radiographers and Radiation Therapists Conference

INTERNAL SERVICES:

2021 – Present	Department Enrolment Liaison Officer
2020 – Present	Clinical Coordinator (Radiation Therapy)
2020 – Present	Student Exchange Liaison Officer
2018 – Present	HA-PolyU Liaison Committee member
2019 – Present	Deputy Marketing and Promotion Office
2020 – 2021	Elected member, Departmental Management Committee
2020 – 2021	Deputy Enrollment Officer

AWARDS:

2023	Silver Award, Exemplary Teaching and Learning Award, eLearning Forum Asia (Team member) *Title:" EmpathyTech: X-Reality & AI in Holistic Healthcare Education"*
2023	Silver Medal, Asia Exhibition of Innovations and Inventions Hong Kong (Team member) *Title: "Mixed reality-based radiotherapy and imaging simulation for clinical education and services"*
2023	Outstanding Presentation Award, The 58th Congress of Korean Radiological Technologists in conjunction with the 10th Asia Radiotherapy Symposium (Individual) *Title: "Clinical evaluation of deep learning and atlas-based auto-contouring for head and neck radiation therapy"*
2021	Faculty of Health and Social Sciences Teaching Prize (Team member) *Title: "Acquisition of knowledge and social-emotional competence for improving patient-centered care"*
2020/21	HTI Teaching Award (Individual) *Title: "Enriching clinical reasoning skills of Radiography students using meta-cognitive approach"*
2020/21	HTI Teaching Award (Team member) *Title: "Acquisition of knowledge and social-emotional competence for improving patient-centered care*
2007/08	The First Class Honours in BSc (Hons) in Radiography (Radiation Therapy)
2007/08	The Highest Cumulative GPA in BSc (Hons) in Radiography (RT)
2007/08	Dean's Honours List, Faculty of Health and Social Sciences, HKPU

REPRESENTATIVE PUBLICATIONS (JOURNAL ARTICLES, BOOK CHAPTERS, MONOGRAPHS AND CONFERENCE PAPERS):
JOURNAL ARTICLES:

Leech, M., Abdalqader, A., Alexander, S., Anderson, N., Barbosa, B., Callens, D., Chapman, V., Coffey, M., Cox, M., Curic, I., Dean, J., Denney, E., Kearney, M., **Leung, V.W.S**., Mortsiefer, M., Nirgianaki, E., Povilaitis, J., Strikou, D., Thompson, K., van den Bosch, M., Buijs, M. (2024). The Radiation Therapist profession through the lens of new technology: A practice development paper based on the ESTRO Radiation Therapist Workshops. *Technical Innovations & Patient Support in Radiation Oncology*, 100243. https://doi.org/10.1016/j.tipsro.2024.100243

Wong, J.Y.K., **Leung, V.W.S.**, Hung, R.H.M., Ng, C.K.C. (2024) Comparative Study of Eclipse and RayStation Multi-Criteria Optimization-Based Prostate Radiotherapy Treatment Planning Quality. *Diagnostics*, 14, 465. https://doi.org/10.3390/diagnostics14050465 **(Corresponding author)**

Nicol, A.J., Ching, J.C., Tam, V.C., Liu, K.C., **Leung, V.W.S**., Cai, J., & Lee, S. W. (2023). Predictive Factors for Chemoradiation-Induced Oral Mucositis and Dysphagia in Head and Neck Cancer: A Scoping Review. *Cancers*, 15(23), 5705. https://doi.org/10.3390/cancers15235705

Leung, V.W.S., Ng, C. K., Lam, S. K., Wong, P. T., Ng, K. Y., Tam, C. H., ... & Cai, J. (2023). Computed Tomography-Based Radiomics for Long-Term Prognostication of High-Risk Localized Prostate Cancer Patients Received Whole Pelvic Radiotherapy. *Journal of Personalized Medicine*, 13(12), 1643. https://doi.org/10.3390/jpm13121643 **(First author and corresponding author)**

Chan, R. C., Ng, C. K., Hung, R. H., Li, Y. T., Tam, Y. T., Wong, B. Y., Yu, J.C.K. & **Leung, V.W.S.** (2023). Comparative Study of Plan Robustness for Breast Radiotherapy: Volumetric Modulated Arc Therapy Plans with Robust Optimization versus Manual Flash Approach. *Diagnostics*, 13(22), 3395. https://doi.org/10.3390/diagnostics13223395. **(Corresponding author)**

Ching, J. C. F., Lam, S., Lam, C. C. H., Lui, A. O. Y., Kwong, J. C. K., Lo, A. Y. H., Chan, J. W. H., Cai, J., **Leung, W. S.**, & Lee, S. W. Y. (2023). Integrating CT-based radiomic model with clinical features improves long-term prognostication in high-risk prostate cancer. *Frontiers in Oncology*, 13, 1060687–. https://doi.org/10.3389/fonc.2023.1060687 **(Co-corresponding author)**

Chan, P. L., **Leung, W. S.**, Vardhanabhuti, V., Lee, S. W., & Chan, J. Y. (2023). Review on applications of metastatic lymph node based radiomic assessment in nasopharyngeal carcinoma. *Journal of Cancer Metastasis and Treatment*, 9, 6. http://dx.doi.org/10.20517/2394-4722.2022.100

Ng, C.K.C.; **Leung, V.W.S.**; Hung, R.H.M. (2022). Clinical Evaluation of Deep Learning and Atlas-Based Auto-Contouring for Head and Neck Radiation Therapy. *Applied Sciences,* 12(22), 11681. https://doi.org/10.3390/app122211681

Ni, R., Zhou, T., Ren, G., Zhang, Y., Yang, D., Tam, V. C. W., **Leung, W.S.**, Ge, H., Lee, S.W.Y., & Cai, J. (2022). Deep Learning-Based Automatic Assessment of Radiation Dermatitis in Patients With Nasopharyngeal Carcinoma. International Journal of Radiation Oncology, Biology, Physics, 113(3), 685–694. https://doi.org/10.1016/j.ijrobp.2022.03.011

Cheung, C. H., Khaw, M. L., **Leung, W. S.**, Tam, S. Y., Chu, C. Y., Lee, C. K., & Lee, S. W. (2021). Effects of Performing Applied Muscle Tension during Recovery after Phlebotomy in Young, First-Time Donors: A Pilot Study. *International Journal of Environmental Research and Public Health*, *18*(19), 10541. https://doi.org/10.3390/ijerph181910541

Leung, W. S., Wu, V. W., Liu, C. Y., & Cheng, A. C. (2019). A dosimetric comparison of the use of equally spaced beam (ESB), beam angle optimization (BAO), and volumetric modulated arc therapy (VMAT) in head and neck cancers treated by intensity modulated radiotherapy. *Journal of Applied Clinical Medical Physics, 20*(11), 121–130. https://doi.org/10.1002/acm2.12748

Wu, V. W., **Leung, W. S**., Wong, K. L., Chan, Y. K., Law, W. L., Leung, W. K., & Yu, Y. L. (2016). The impact of positron emission tomography on primary tumour delineation and dosimetric outcome in intensity modulated radiotherapy of early T-stage nasopharyngeal carcinoma. *Radiation Oncology*, *11*(1), 109. https://doi.org/10.1186/s13014-016-0685-8

Wu, W. V., **Leung, W. S.**, San Kay, S., Cheung, H. C., & Wah, Y. K. (2011). A comparison between electronic portal imaging device and cone beam CT in radiotherapy verification of nasopharyngeal carcinoma. *Medical Dosimetry*, *36*(1), 109-112. https://doi.org/10.1016/j.meddos.2010.01.005

BOOK CHAPTER:

Leung, W. S. , & Hung, H. M. (2022). Treatment of Head and Neck Cancers Using Radiotherapy. In T. J. FitzGerald, & M. Bishop-Jodoin (Eds.), Dosimetry. IntechOpen. https://doi.org/10.5772/intechopen.103678

CONFERENCE PAPERS:

Tam, S. Y., Man, K. H., Lau, T. S., **Leung, V.W.S.**, Mak, S. W., Tang, W. M., ... & Law, H. K. W. (2023). Evaluation of the psychosocial needs of post-radiotherapy rectal cancer survivors and their direct caregivers in Hong Kong: A pilot study.

Hung, H. M., & **Leung, W. S.** (2022). PO-1876 The robustness planning of SBRT for centrally-located non-small cell lung cancer. *Radiotherapy and Oncology*, 170, S1662. (Presenting author)

Hung, H. M., & **Leung, W. S.** (2022). 116P Robustness evaluation of VMAT by robust optimization and manual flash approach for breast cancer radiotherapy. *Annals of Oncology*, 33, S177.

Leung, V. W. S. (2022). Technological Advances in Radiotherapy: Current Status, Challenges and Promises. *Journal of Medical Imaging and Radiation Sciences*, 53(3), 2-3.

Ching, C. F., Tam, C. W., Law, K. W., **Leung, W. S.**, & Lee, W. Y. (2022). Out-of-hospital support for preparation of radiotherapy in pediatric patients during COVID-19. *Supportive Care in Cancer*, S136-S137.
Lee, W. Y. S., Nicol, A. J., Cai, J., Law, K. W. H., Tam, C. W., & **Leung, W. S.** (2022, July). Student experiential learning through patient education: game-oriented radiotherapy simulation for pediatric cancer patients. In *64th Annual Meeting-American Society of Physics in Medicine*.

Lee, W. Y. S., & **Leung, W. S.** (2021). Management of long-term radiation side effects of head and neck cancer survivors using photobiomodulation therapy: study protocol for a prospective interventional study. In *North American Association for Photobiomodulation Therapy Virtual Summit 2021*. (Presenting author)

Tam, C. W., Lee, W. Y. S., **Leung, W. S.**, Wu, W. C. V., & Cheung, C. H. Y. (2021). Management of oral mucositis and radiation dermatitis using photobiomodulation therapy in nasopharyngeal cancer patients receiving chemo-radiotherapy: Preliminary results of a randomized-controlled trial. *In North American Association for Photobiomodulation Therapy Virtual Summit*.

Leung, W. S., Wu, V. W. C., Tang, F. H., & Cheng, A. C. K. (2016). OC-0270: Development of a model to produce reference parotid dose from anatomical parameters in IMRT of NPC. *Radiotherapy and Oncology*, 119, S126.

CONFERENCE PRESENTATIONS:

Invited speaker for the 8th Southeast Asia Radiographers Conference
(25 – 27 March, 2022, Singapore)
"Technological Advances in Radiotherapy: Current Status, Challenges and Promises"

Invited guest speaker for the 中華醫學會放射腫瘤治療學分會 2019 年放療技術學組學術年會
(6 – 8 September, 2019, NanChang, Hunan Province)
"肝癌 SBRT 實施"

Invited guest speaker for the 市級繼續醫學教育項目-肺癌精准診療沙龍
(13 July, 2019, Panzihua, Sichuan Province)
"SBRT 的協議指引和個案分享"

The 4th Hong Kong Radiographers & Radiation Therapists Conference, 2019
(15 June, 2019, Hong Kong)
"A Dosimetric Comparison of the Use of Equally Spaced Beam (ESB), Beam Angle Optimization (BAO) and Volumetric Modulated Arc Therapy (VMAT) in the Intensity Modulated Radiotherapy (IMRT) of Head and Neck Cancers"

The 20th Asia-Australasia Conference of Radiological Technologists, 2015
(14 July, 2015, Singapore)

"Dosimetric comparison of different beam arrangement in intensity modulated radiotherapy (IMRT) of maxillary sinus carcinoma"

The 18th Asia-Australasia Conference of Radiological Technologists, 2011
(25-27 March, 2011, Kaosiung, Taiwan)
"Beam angle optimization in intensity modulated radiation therapy planning - A systematic review"

The 2nd annual scientific meeting of the HKCRRT, 2010
(9 October, 2010, Hong Kong)
"A comparison between electronic portal imaging device and cone beam CT in radiotherapy verification of nasopharyngeal carcinoma"

RESEARCH GRANTS:

Professional Services Advancement Support Scheme (PASS). HK$753,900 awarded
"Hong Kong Radiographers and Radiation Therapists Conference – Personalized Care in Medical Imaging and Radiotherapy"
Ref No. PS223003
Role: Project Coordinator

Collaborative Research Scheme between PolyU (HTI) and PYNEH (Clinical Oncology). HK$349,860 awarded
"*Automatic segmentation of clinical target volume and organs at risk for radiotherapy of breast cancer using deep learning convolution neural networks*"
Role: Principal investigator

Health and Medical Research Fund – Research Fellowship Scheme (06200137). HK$1,130,940 awarded
"Evaluation of the treatment outcome of definitive radiotherapy in non-small cell lung cancer using radiomics and dosiomics"
Ref No. 06200137
Role: Principal applicant

Health and Medical Research Fund (09200576). HK$1,494,000 awarded
"Individualized prediction of acute radiation esophagitis in lung cancer patients through domain adaptation in a hybrid prospective and retrospective study"
Ref No. 09200576, 2021
Role: Co-applicant

Health and Medical Research Fund (07183176). HK$1,425,760 awarded
"*Management of oral mucositis using low-level laser therapy in nasopharyngeal cancer patients receiving chemo-radiotherapy: A randomized-controlled trial (MAGNETO)*"
Ref No. 07183176, 3/2020
Role: Co-applicant

Science and Technology Department of SiChuan Province 四川省科學技術廳 2020 年第一批省級科技計畫項目. RMB¥200,000 awarded

"Establishment of the relationship between pituitary gland radiation dose and hypopituitarism using Acruros XB calculation algorithm 鼻咽癌病人放療後腦垂腺機能衰退症和劑量的關係- 應用AcurosXB 演算法來計算較準確的劑量分佈"
Ref No. 2020YFH0194, 6/2020
Role: Co-Principal Investigator

TEACHING GRANTS:

Teaching Development Grant (TDG) 2022-25, PolyU. HKD$900,000 awarded
"*v-Care Interdisciplinary Saloon*"
2023, Role: Co-applicant

Large Equipment Fund for Teaching, PolyU. HK$1,000,000 awarded
"RayStation – Deep learning computer system for radiotherapy treatment planning and medical images processing"
6/2021, Role: Co-applicant

Online Teaching Development and Educational Research Grant, Quality Incentive Scheme on Online Teaching, PolyU. HK$999,950 awarded
"Development of structured simulation-based online training and assessment platform for radiography students"
4/2021, Role: Co-applicant

Special Grant for Virtual Teaching and Learning, PolyU. HK$1,200,000 awarded
"Video-based learning in specialized training: Enhancing inter-professional communication skills in healthcare settings through mini-case videos"
3/2021, Role: Team member

RESEARCH PROJECTS

Title	Investigation on the psychological needs of post-radiotherapy rectal cancer survivors and their direct caregivers in Hong Kong
Year	2020-Present *(On-going)*
Role	Co-investigator
Title	Dosimetric study on packing tissue-equivalent bolus in cases of significant tissue loss during radical radiotherapy using IMRT for head and neck cancers
Year	2016 – 2020 *(Direct impact on the implementation of adaptive RT protocol at PMH, Hong Kong)*
Role	Co-investigator
Title	Evaluation of the Effect of Beam Arrangements and Establishment of Treatment Planning Models in Intensity Modulated Radiation Therapy of Head and Neck Cancers
Year	2013 – 2020 *(Completed for PhD study)*
Role	Principal Investigator

BACHELORS DEGREE FINAL YEAR PROJECT SUPERVISION

Name of project	Robustness evaluation of VMAT planning for breast radiotherapy by robust optimization and manual flash approach
Year	2022-2023
Role	Supervisor

Name of project	Management of the late treatment-induced side effects of nasopharyngeal carcinoma (NPC) survivors using photobiomodulation therapy: A feasibility study
Year	2021-2022
Role	Supervisor

Name of project	A planning CT-based radiomics model to predict the clinical outcome of whole pelvic radiotherapy in localized prostate cancer patients indicated for prophylactic pelvic lymph node irradiation
Year	2020-2021
Role	Supervisor

Name of project	Dosimetric Effects of Collimator Angles in Volumetric Modulated Arc Therapy Planning in Cancers of the Left Breast
Year	2019-2020
Role	Co-supervisor

MASTERS DEGREE DISSERTATION SUPERVISION

Name of project	Dosimetric comparison of photon-based backup plans for proton therapy in prostate cancer: RayStation fallback planning vs manual optimization
Year	2022-2023
Role	Supervisor

Name of project	RayStation and Eclipse multo-criteria optimization modules in prostate cancer radiotherapy: A comparative analysis of Pareto and final plans
Year	2022-2023
Role	Supervisor

Name of project	A planning CT-based radiomics model to predict the risk of radiation-induced pulmonary toxicity after stereotactic body radiotherapy in early stage lung cancer patients or lung metatasis patients.
Year	2021-2022
Role	Supervisor