

Lawrence, Wing-chi CHAN

(Associate Professor)



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QUALIFICATIONS: Doctor of Philosophy, the University of Hong Kong (Artificial Intelligent Control)
2001

Bachelor of Engineering, the University of Hong Kong 1996

BRIEF OUTLINE OF EXPERIENCE AND POSTS HELD:

2015 - Associate Professor, Department of Health Technology and Informatics, Hong Kong Polytechnic University; Programme Leader of MSc MIRS

2016 - Guest Professor, Institute of Nuclear Medicine and Molecular Imaging, Zhejiang University

2006 - 2015 Assistant Professor, Department of Health Technology and Informatics, Hong Kong Polytechnic University

- 2005 - 2006 Research Fellow, Department of Health Technology and Informatics, Hong Kong Polytechnic University
- 2002 – 2005 Research Fellow (yr 04-05) / Research Associate (yr 02-04), Department of Optometry and Radiography, Hong Kong Polytechnic University
- 2000 – 2002 Database Administrator, Jockey Club Research and Information Centre for Landslip Prevention and Land Development, the University of Hong Kong

RESEARCH INTERESTS:

Bioinformatics, imaging informatics and clinical decision support

SERVICES TO PROFESSIONAL & SCIENTIFIC BODIES, CONSULTANCIES:

- Guest Editor, Special Issue with Bioengineering: Artificial Intelligence for Computer-Aided Detection in Biomedical Applications, 2024
- Founder, Biomedical Big Data Laboratory, Hong Kong Polytechnic University, 2017-2022
- Editorial Board Member, Genomics, Proteomics & Bioinformatics, 2020-2022
- Associate Editor, Frontiers in Genetics
- Guest Editor, Special Issue with Information Systems Frontiers: Knowledge Discovery and Management in Biomedical Information Systems, 2009
- Editorial Board Member, iRadiology (Open Access Journal, ISSN:2834-2879)
- Organizing committee member, IEEE International Conference on e-Health Networking, Application & Services: HealthCom 2011, Missouri
- Technical program committee member, IEEE International Conference on e-Health Networking, Application & Services: HealthCom 2012, Beijing
- Advisory committee member, Higher Diploma in Pharmaceutical Dispensing, Department of Health Sciences, Caritas Bianchi College of Careers
- Affiliate member, Hong Kong Society of Medical Informatics (HKSMI)
- Expert Panel Member, HKSTP, 2019-2023
- Incu-Bio Assessment Panel Member, HKSTP, 2023-2025
- Enterprise Support Scheme (ESS), Innovation and Technology Fund (ITF), 2023-2025

COMMERCIALIZATION:

Co-Founder of startup, Infiniti MINDS Limited 無限思維有限公司

<https://www.hkstp.org/our-community/directory/company-details/?company=infiniti-minds-limited>

In May 2023, Innovation and Technology Commission (ITC) approved the application (Ref. No.: TSSSU/PolyU/23/20/OP1) for the matching fund up to HK\$1,000,000 under the Technology Start-up Support Scheme for Universities (TSSSU+). The project period is from 1 April 2023 to 31 March 2024 (12 months).

Infiniti MINDS Limited has also been offered a funding of HK\$ 4,000,000 in total from the Incu-Bio Programme, which is a 4-year Programme provided by Hong Kong Science and Technology Parks Corporation (HKSTPC).

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

Journal Articles: (* corresponding author, # equal contribution)

1. Hu, N., Yan, G., Tang, M. et al. CT-based methods for assessment of metabolic dysfunction associated with fatty liver disease. *Eur Radiol Exp* 7, 72 (2023).
<https://doi.org/10.1186/s41747-023-00387-0> (2022 Impact factor: 3.8)
2. Li JM[#], Li X[#], Chan LWC[#], et al. Lipotoxicity-polarised macrophage-derived exosomes regulate mitochondrial fitness through Miro1-mediated mitophagy inhibition and contribute to type 2 diabetes development in mice. *Diabetologia*. 2023;66(12):2368-2386. doi:10.1007/s00125-023-05992-7 (2022 Impact factor: 8.2)
3. Wu S, Zhan W, Liu L, et al. Pretreatment radiomic biomarker for immunotherapy responder prediction in stage IB-IV NSCLC (LCDigital-IO Study): a multicenter retrospective study. *J Immunother Cancer*. 2023;11(10):e007369. doi:10.1136/jitc-2023-007369 (2022 Impact factor: 10.9)
4. Huang M, Yang S, Tai WCS, Zhang L, Zhou Y, Cho WCS, Chan LWC, Wong SCC. Bioinformatics Identification of Regulatory Genes and Mechanism Related to Hypoxia-Induced PD-L1 Inhibitor Resistance in Hepatocellular Carcinoma. *Int J Mol Sci*. 2023 May 13;24(10):8720. (2022 Impact factor: 5.6)
5. Tai-Chung Lam, William Chi-Shing Cho, Joseph Siu-Kie Au, Edmond Shiu-Kwan Ma, Stephen Tak-Sum Lam, Herbert Ho-Fung Loong, Jason Wing Hon Wong, S.N. Michael Wong, Victor Ho-Fun Lee, Roland Ching-Yu Leung, Johnny Kin-Sang Lau, Michael Tsz-Yeung Kam, Florence Siu-Ting Mok, Fiona Mei-Ying Lim, Jonathan Shi-Feng Nyaw, Winnie Wing-Yan Tin, Ka-Man

- Cheung, Oscar Siu-Hong Chan, Philip Wai-Kay Kwong, Foon-Yiu Cheung, Darren M.C. Poon, Jeannie Yin-Kwan Chik, Martin Ho-Ching Lam, Lawrence Wing-Chi Chan, Sze-Chuen Cesar Wong, Ya-Bing Cao, Cheng-Vai Hui, Jack Zhi-Jian Chen, Jian-Hua Chang, Spring Feng-Ming Kong, Aya El Helali, and on behalf of the Precision Oncology Working Group (POWG) (2023) Consensus Statements on Precision Oncology in the China Greater Bay Area. *JCO Precision Oncology* 7. (2022 Impact factor: 4.6)
6. Pinggui Lei, Na Hu, Yuhui Wu, Maowen Tang, Chong Lin, Luoyi Kong, Lingfeng Zhang, Peng Luo, Lawrence Wing-Chi Chan (2023) Radiobioinformatics: a novel bridge between basic research and clinical practice for clinical decision support in diffuse liver diseases. *iRADIOLOGY*;1– 23. <https://doi.org/10.1002/ird3.24>
 7. Chan LWC, Sihoe A. Synergistic markers based on inter-covariate association estimate treatment option with lower propensity to covariates. *Ann Transl Med* 2023. doi: 10.21037/atm-22-5006
 8. Cesar Wong SC, Pei Aimee PX, Yee Lam EK, Chi Chan LW, Tsang HF (2023) Non-Invasive Colorectal Cancer Mutation Profiling by Targeted Sequencing of Tumour-Derived DNA in the Tongue Coating of Cancer Patients. *Int J Geriatr Gerontol* 6: 146. (2022 Impact factor: 3.3)
 9. Wu Y, Liu Q, Wang Y, Li F, Chan LWC, Wen Y, Yang F, Xiang Y, Duan Q, Luo P, et al. 2023. Diagnostic efficiency on ultrasound shear wave elastography in evaluation of steatosis severity for non-alcoholic fatty liver disease: a rat model. *European Journal of Medical Research*. 28(1):Article 75. <https://doi.org/10.1186/s40001-023-01042-5>. (2022 Impact factor: 4.2)
 10. Chan LWC*, Wong SCC, Cho WCS, Huang M, Zhang F, Chui ML, Lai UNY, Chan TYK, Cheung ZHC, Cheung JCY, Tang KF, Tse ML, Wong HK, Kwok HMF, Shen X, Zhang S, Chiu KWH* (2023) Primary Tumor Radiomic Model for Identifying Extrahepatic Metastasis of Hepatocellular Carcinoma Based on Contrast Enhanced Computed Tomography. *Diagnostics* 13(1):102. (2022 Impact factor: 3.6)
 11. Shao H*, Chan WCL, Du H, Chen XF, Ma Q, Shao Z (2022) A new machine learning algorithm with high interpretability for improving the safety and efficiency of thrombolysis for stroke patients: A hospital-based pilot study. *Digit Health* 9:20552076221149528. (2022 Impact factor: 3.9)
 12. Shao H, Chen X, Ma Q, Shao Z, Du H and Chan LWC* (2022) The feasibility and accuracy of machine learning in improving safety and efficiency of thrombolysis for patients with stroke: Literature review and proposed improvements. *Front. Neurol.* 13:934929. doi: 10.3389/fneur.2022.934929 (2022 Impact factor: 3.4)

13. Yuan H, Qiu J, Chiu KWH, Chan LWC, Zhang F, Wei X, Jiang L. PET/CT morphology and cardiac conduction disorders help discriminate primary cardiac lymphoma from primary cardiac sarcoma. *J Nucl Cardiol*. 2022 Jul 5. doi: 10.1007/s12350-022-03042-0. Epub ahead of print. PMID: 35790691. (2022 Impact factor: 2.4)
14. Dongrong Yang, Ge Ren, Ruiyan Ni, Yu-Hua Huang, Ngo Fung Daniel Lam, Hongfei Sun, Shiu Bun Nelson Wan, Man Fung Esther Wong, King Kwong Chan, Hoi Ching Hailey Tsang, Lu Lena Xu, Tak Chiu Wu, Feng-Ming (Spring) Kong, Yi Xiang J Wang, Jing Qin, Wing Chi Lawrence Chan, Michael Ying, Jing Cai. Deep Learning Attention-Guided Radiomics for COVID-19 Chest Radiograph Classification. *Quantitative Imaging in Medicine and Surgery* 2022. (2022 Impact factor: 2.8)
15. Zhou, R., Qian, S., Cho, W. C. S., Zhou, J., Jin, C., Zhong, Y., Wang, J., Zhang, X., Xu, Z., Tian, M.*, Chan, L. W. C.*, & Zhang, H.* (2022). Microbiota-microglia connections in age-related cognition decline. *Aging Cell*, 00, e13599. doi: 10.1111/acer.13599 (2021 Impact factor: 11.005)
16. Lam NFD, Sun H, Song L, Yang D, Zhi S, Ren G, Chou PH, Wan SBN, Wong MFE, Chan KK, Tsang HCH, Kong FM, Wáng YXJ, Qin J, Chan LWC, Ying M*, Cai J*. Development and validation of bone-suppressed deep learning classification of COVID-19 presentation in chest radiographs. *Quant Imaging Med Surg* 2022. doi: 10.21037/qims-21-791 (2021 Impact factor: 4.63)
17. Chan LW-C*, Ding T, Shao H, Huang M, Hui WF-Y, Cho WC-S*, Wong S-CC, Tong KW, Chiu KW-H, Huang L and Zhou H* (2022) Augmented Features Synergize Radiomics in Post-Operative Survival Prediction and Adjuvant Therapy Recommendation for Non-Small Cell Lung Cancer. *Front. Oncol*. 12:659096. doi: 10.3389/fonc.2022.659096 (2021 Impact factor: 5.738)
18. Lam S-K, Zhang Y, Zhang J, Li B, Sun J-C, Liu CY-T, Chou P-H, Teng X, Ma Z-R, Ni R-Y, Zhou T, Peng T, Xiao H-N, Li T, Ren G, Cheung AL-Y, Lee FK-H, Yip CW-Y, Au K-H, Lee VH-F, Chang AT-Y, Chan LW-C and Cai J (2022) Multi-Organ Omics-Based Prediction for Adaptive Radiation Therapy Eligibility in Nasopharyngeal Carcinoma Patients Undergoing Concurrent Chemoradiotherapy. *Front. Oncol*. 11:792024. doi: 10.3389/fonc.2021.792024 (2021 Impact factor: 5.738)
19. Lam, S.-K.; Zhang, J.; Zhang, Y.-P.; Li, B.; Ni, R.-Y.; Zhou, T.; Peng, T.; Cheung, A.L.-Y.; Chau, T.-C.; Lee, F.K.-H.; Yip, C.W.-Y.; Au, K.-H.; Lee, V.H.-F.; Chang, A.T.-Y.; Chan, L.W.-C.; Cai, J. (2022) A Multi-Center Study of CT-Based Neck Nodal Radiomics for Predicting an Adaptive Radiotherapy Trigger of Ill-Fitted Thermoplastic Masks in Patients with Nasopharyngeal Carcinoma. *Life*, 12, 241. <https://doi.org/10.3390/life12020241> (2021 Impact factor: 3.251)

20. Liao G, Huang L, Wu S, Zhang P, Xie D, Yao L, Zhang Z, Yao S, Shanshan L, Wang S, Wang G, Chan LWC*, Zhou H* (2022). Preoperative CT-based peritumoral and tumoral radiomic features prediction for tumor spread through air spaces in clinical stage I lung adenocarcinoma. *Lung Cancer* 163: 87-95. (2021 Impact factor: 6.081)
21. Huang L, Lin W, Xie D, Yu Y, Cao H, Liao G, Wu S, Yao L, Wang Z, Wang M, Wang S, Wang G, Zhang D, Yao S, He Z, Cho WCS, Chen D, Zhang Z, Li W, Qiao G*, Chan LWC*, Zhou H* (2021). Development and validation of a preoperative CT-based radiomic nomogram to predict pathology invasiveness in patients with a solitary pulmonary nodule: a machine learning approach, multicenter, diagnostic study. *Eur Radiol.* 32(5), 1983-1996. <https://doi.org/10.1007/s00330-021-08268-z> (2021 Impact factor: 7.034)
22. Zhu H, Xie D, Yu Y, Yao L, Xu B, Huang LY, Wu S, Li F, Zheng Y, Liu X, Xie W, Huang M, Li H, Zheng S, Zhang D, Qiao G, Chan LWC, Zhou H* (2021). KEAP1/NFE2L2 Mutations of Liquid Biopsy as Prognostic Biomarkers in Patients with Advanced Non-Small Cell Lung Cancer: Results From Two Multicenter, Randomized Clinical Trials. *Frontiers in Oncology* 11:659200. DOI: 10.3389/fonc.2021.659200 (2021 Impact factor: 5.738)
23. Kwok CYT, Wong MS, Chan KL, Kwan MP, Nichol JE, Liu CH, Wong JYH, Wai AKC, Chan LWC, Xu Y (2020). Spatial analysis of the impact of urban geometry and socio-demographic characteristics on COVID-19, a study in Hong Kong. *Science of the Total Environment* 764, 144455. (<https://doi.org/10.1016/j.scitotenv.2020.144455>) (2021 Impact factor: 10.753)
24. Hin Fung Tsang, Lawrence Wing Chi Chan, William Chi Shing Cho, Allen Chi Shing Yu, Aldrin Kay Yuen Yim, Amanda Kit Ching Chan, Lawrence Po Wah Ng, Yin Kwan Evelyn Wong, Xiao Meng Pei¹, Marco Jing Woei Li, Sze Chuen Cesar Wong (2020) An Update on COVID-19 Pandemic: The Epidemiology, Pathogenesis, Prevention and Treatment Strategies. *Expert Review of Anti-infective Therapy.* (DOI: 10.1080/14787210.2021.1863146) (2021 Impact factor: 5.854)
25. So Yat Wu , Hoi Shan Yau , Man Yee Yu , Hin Fung Tsang , Lawrence Wing Chi Chan , William Chi Shing Cho , Allen Chi Shing Yu , Aldrin Kay Yuen Yim , Marco J W Li , Yin Kwan Evelyn Wong , Xiao Meng Pei & Sze Chuen Cesar Wong (2020): The diagnostic methods in the COVID-19 pandemic, today and in the future. *Expert Review of Molecular Diagnostics* 9, 985-993. DOI: 10.1080/14737159.2020.1816171 (2021 Impact factor: 5.67)
26. Chan LWC, Chiu KWH, Chuh AAT (2020). Dermoscope-guided surgical procedures – a review of the types of procedures, advantages, evidence, limitations, and future prospects with novel technological enhancements. *International Journal of Dermatology* 60(1), 113-116. (2021 Impact factor: 3.204)
27. Wang, F., Meng, F., Wong, S. C. C., Cho, W. C. S.*, Yang, S.*, Chan, L. W. C.* (2020). Combination therapy of gefitinib and miR-30a-5p may overcome acquired drug resistance

- through regulating the PI3K/AKT pathway in non-small cell lung cancer. *Therapeutic Advances in Respiratory Disease* 14, 1-18. <https://doi.org/10.1177/1753466620915156> (2021 Impact factor: 5.158)
28. Zhou R, Cho WCS, Ma V, Cheuk W, So YK, Wong SCC, Zhang M, Li C, Sun Y, Zhang H*, Chan LWC*, Tian M* (2020) ADAM9 mediates triple negative breast cancer progression via AKT/NF- κ B pathway. *Frontiers in Medicine* 7:214. doi: 10.3389/fmed.2020.00214 (2021 Impact factor: 5.058)
29. Cho WCS, Chan LWC and Wong CSC (2020) Editorial: Role of RNA in Molecular Diagnostics of Cancer. *Front. Genet.* 11:435. doi: 10.3389/fgene.2020.00435 (2021 Impact factor: 4.772)
30. Perucho JA, Chiu KWH, Wong EMF, Tse KY, Chu MMY, Chan LWC, Pang H, Khong PL, Lee EYP (2020) Diffusion-weighted magnetic resonance imaging of primary cervical cancer in the detection of sub-centimetre metastatic lymph nodes. *Cancer Imaging* 20(1):27. doi: 10.1186/s40644-020-00303-4 (2021 Impact factor: 5.605)
31. Li X, Chan LWC, Li X, Liu C, Yang G, Gao J, Dai M, Wang Y, Xie Z, Liu J, Zhou F, Zheng T, Feng D, Guo S, Li H, Sun K, Yang S (2020) Obesity-Induced Regulator of Calcineurin 1 Overexpression Leads to β -Cell Failure Through Mitophagy Pathway Inhibition. *Antioxid Redox Signal.* 32(7):413-428. doi: 10.1089/ars.2019.7806. (2021 Impact factor: 7.468)
32. Wong YKE, Lam KW, Ho KY, Yu CSA, Cho CSW, Tsang HF, Chu MKM, Ng PWL, Tai CSW, Chan LWC, Wong EYL, Wong SCC (2019) The applications of big data in molecular diagnostics. *Expert Review of Molecular Diagnostics* 19(10), 905-917. (2021 Impact factor: 5.67)
33. Pro Kit Cheung, Man Hin Ma, Hing Fung Tse, Ka Fai Yeung, Hin Fung Tsang, Man Kee Maggie Chu, Chau Ming Kan, William Chi Shing Cho, Lawrence Bo Wah Ng, Lawrence Wing Chi Chan & Sze Chuen Cesar Wong (2019) The applications of metabolomics in the molecular diagnostics of cancer, *Expert Review of Molecular Diagnostics* 19(9), 785-793. DOI: 10.1080/14737159.2019.1656530 (2021 Impact factor: 5.67)
34. Chan LWC*, Wang FF, Meng F, Wang LL, Wong SCC, Au JSK, Yang S, Cho WCS*. Multi-scale representation of proteomic data exhibits distinct microRNA regulatory modules in non-smoking female patients with lung adenocarcinoma. *Computers in Biology and Medicine* 2018; 102, 51-56. (<https://doi.org/10.1016/j.combiomed.2018.09.005>) (2021 Impact factor: 6.698)
35. Supriya R, Tam BT, Yu AP, Lee PH, Lai CW, Cheng KK, Yau SY, Chan LW, Yung BY, Sheridan S, Siu PM*. Adipokines demonstrate the interacting influence of central obesity with other cardiometabolic risk factors of metabolic syndrome in Hong Kong Chinese adults. *PLoS One.* 2018 Aug 16;13(8):e0201585. doi: 10.1371/journal.pone.0201585. PubMed PMID: 30114249; PubMed Central PMCID: PMC6095502. (2021 Impact factor: 3.752)

36. Tsang HF, Chan LWC, Tong JCH, Wong HT, Lai CKC, Au TCC, Chan AKC, Ng LPW, Cho WCS, Wong SCC (2018) Implementation and new insights in molecular diagnostics for HIV infection. *Expert Review of Molecular Diagnostics* 18(5), 433-441. (2021 Impact factor: 5.67)
37. Supriya R, Yung BY, Yu AP, Lee PH, Lai CW, Cheng KK, Yau SY, **Chan LWC**, Sheridan S, Siu PM. Adipokine Profiling in Adult Women With Central Obesity and Hypertension. *Front Physiol.* 2018 Mar 27;9:294. doi: 10.3389/fphys.2018.00294. eCollection 2018. (2021 Impact factor: 3.718)
38. Tam, B.T., Yu, A.P., Tam, E.W., Monks, D.A., Wang, X.P., Pei, X.M., Koh, S.P., Sin, T.K., Law, H.K.W., Ugwu, F.N., Supriya, R., Yung, B.Y., Yip, S.P., Wong, S.C., **Chan, L.W.**, Lai, C.W., Ouyang, P., Siu, P.M. (2018) Ablation of Bax and Bak protects skeletal muscle against pressure-induced injury. *Scientific Reports*, 8 (1), art. no. 3689. (DOI: 10.1038/s41598-018-21853-5) (2021 Impact factor: 4.996)
39. Supriya, R., Yu, A.P., Lee, P.H., Lai, C.W., Cheng, K.K., Yau, S.Y., **Chan, L.W.**, Yung, B.Y., Siu, P.M. (2018) Yoga training modulates adipokines in adults with high-normal blood pressure and metabolic syndrome. *Scandinavian Journal of Medicine and Science in Sports*, 28 (3), pp. 1130-1138. (DOI: 10.1111/sms.13029) (2021 Impact factor: 4.645)
40. Chan VKY, **Chan LWC**, Chow DHK. Oxygen Saturation and Heart Rate Variations as Predictors of Intradialytic Hypotension. *Nephrol Nurs J.* 2018 Jan-Feb;45(1):53-60. (2021 Impact factor: 0.882)
41. HL Wong, LP Ng, SP Koh, **Lawrence Chan**, Evelyn Yin Kwan Wong, Vivian Weiwen Xue, Hin Fung Tsang, Amanda Kit Ching Chan, KY Chiu, W Cheuk, and SC Cesar Wong (2018). Hotspot KRAS exon 2 mutations in CD166 positive colorectal cancer and colorectal adenoma cells. *Oncotarget*, 9(29), 20426-20438. doi: 10.18632/oncotarget.24921 (2021 Impact factor: 4.345)
42. Chen, L., Liu, C., Gao, J., Xie, Z., **Chan, L. W. C.**, Keating, D. J., ... Yang, S. (2017). Inhibition of Miro1 disturbs mitophagy and pancreatic β -cell function interfering insulin release via IRS-Akt-Foxo1 in diabetes. *Oncotarget*, 8(53), 90693–90705. <http://doi.org/10.18632/oncotarget.20963> (2021 Impact factor: 4.345)
43. **Lawrence W. C. Chan***, S. C. Cesar Wong, Choo Chiap Chiau, et al., "Association Patterns of Ontological Features Signify Electronic Health Records in Liver Cancer," *Journal of Healthcare Engineering*, vol. 2017, Article ID 6493016, 9 pages, 2017. doi:10.1155/2017/6493016 (2021 Impact factor: 3.822)

44. Liu ES, Wu VW, Harris B, Foote M, Lehman M, **Chan LW***. Vector-model-supported optimization in volumetric-modulated arc stereotactic radiotherapy planning for brain metastasis. *Med Dosim.* 2017 Mar 17. pii: S0958-3947(17)30002-X. doi: 10.1016/j.meddos.2017.01.002. (2021 Impact factor: 1.531)
45. Liu ES, Wu VW, Harris B, Lehman M, Pryor D, **Chan LW***. Vector-model-supported approach in prostate plan optimization. *Med Dosim.* 2017 Mar 17. pii: S0958-3947(17)30001-8. doi: 10.1016/j.meddos.2017.01.001. (2021 Impact factor: 1.531)
46. Y. K. Wong, H. F. Tsang, V. W. Xue, C. M. Chan, T. C. Au, W. C. Cho, **L. W. Chan** & S. C. Wong (2017) Applications of digital PCR in precision medicine, *Expert Review of Precision Medicine and Drug Development*, 2:3, 177-186. (2021 Impact factor: 1.41)
47. Patrick Y.P. Kao, Kim Hung Leung, **Lawrence W.C. Chan**, Shea Ping Yip*, Maurice K.H. Yap. Pathway analysis of complex diseases for GWAS, extending to consider rare variants, multi-omics and interactions. *Biochimica et Biophysica Acta (BBA) - General Subjects*. Volume 1861, Issue 2, February 2017, Pages 335–353. (2021 Impact factor: 4.117)
48. **Chan LWC***, Wang FF, Meng F, Wang LL, Wong SCC, Au JSK, Yang S, Cho WCS. MiR-30 Family Potentially Targeting PI3K-SIAH2 Predicted Interaction Network Represents a Novel Putative Theranostic Panel in Non-small Cell Lung Cancer. *Front. Genet.* 2017; 8:8. (doi: 10.3389/fgene.2017.00008) (2021 Impact factor: 4.772)
49. Wang FF, Meng F, Wang LL, Wong SCC, Cho WCS, **Chan LWC***. Associations of mRNA:microRNA for the Shared Downstream Molecules of EGFR and Alternative Tyrosine Kinase Receptors in Non-small Cell Lung Cancer. *Front. Genet.* 2016; 7:173. (doi: 10.3389/fgene.2016.00173) (2021 Impact factor: 4.772)
50. Meng F, Wang FF, Wang LL, Wong SCC, Cho WCS, **Chan LWC***. MiR-30a-5p Overexpression May Overcome EGFR-Inhibitor Resistance through Regulating PI3K/AKT Signaling Pathway in Non-small Cell Lung Cancer Cell Lines. *Front. Genet.* 2016; 7:197. (doi: 10.3389/fgene.2016.00197) (2021 Impact factor: 4.772)
51. Hou J, Meng F, **Chan LWC***, Cho WCS, Wong SCC. Circulating Plasma MicroRNAs As Diagnostic Markers for NSCLC. *Front. Genet.* 2016; 7:193. (doi: 10.3389/fgene.2016.00193) (2021 Impact factor: 4.772)
52. Supriya R, Tam BT, Pei XM, Lai CW, **Chan LW**, Yung BY and Siu PM (2016) Doxorubicin Induces Inflammatory Modulation and Metabolic Dysregulation in Diabetic Skeletal Muscle. *Front. Physiol.* 7:323. doi: 10.3389/fphys.2016.00323 (2021 Impact factor: 4.755)
53. Pei X, Tam B, Sin T, Wang F, Yung B, **Chan LW**, Wong S, Ying M, Lai C and Siu PM (2016). S100A8 and S100A9 are Associated with Doxorubicin-induced Cardiotoxicity in the Heart of

- Diabetic Mice. *Front. Physiol.* 7:334. doi: 10.3389/fphys.2016.00334 (2021 Impact factor: 4.755)
54. Sin TK, Wang F, Meng F, Wong SCC, Cho WCS, Siu PM, **Chan LWC***, Yung BYM. Implications of MicroRNAs in the Treatment of Gefitinib-Resistant Non-Small Cell Lung Cancer. *International Journal of Molecular Sciences.* 2016; 17(2):237. (doi:10.3390/ijms17020237) (2020 Impact factor: 6.208)
55. **CHAN LWC***, CHAN TP, Cheung BTF, Mo K, Fung KKL. Simulation, visualization and dosimetric validation of scatter radiation distribution under fluoroscopy settings. *Journal of Biomedical Engineering and Informatics* 2015; 1(1): 93-102. (<http://www.sciencedirect.com/journal/index.php/jbei/article/view/7268>)
56. **Lawrence WC Chan**, Xihong Lin, Godwin Yung, Thomas Lui, Ya Ming Chiu, Fengfeng Wang, Nancy BY Tsui, William CS Cho, SP Yip, Parco M Siu, SC Cesar Wong, Benjamin YM Yung*. Novel structural co-expression analysis linking the NPM1-associated ribosomal biogenesis network to chronic myelogenous leukemia. *Scientific Reports*, 2015, 5 (10973). (doi: 10.1038/srep10973) (2021 Impact factor: 4.996)
57. Tam BT, Pei XM, Yung BY, Yip SP, **Chan LW**, Wong CS, and Siu PM. Unacylated ghrelin restores insulin and autophagic signalling in skeletal muscle of diabetic mice. *Pflügers Archiv - European Journal of Physiology*, 2015, 1-15. (2021 Impact factor: 4.458)
58. **Lawrence Wing Chi Chan***, Bin Pang, Chi-Ren Shyu, Tao Chan and Pek-Lan Khong. Genetic Algorithm Supported by Graphical Processing Unit Improves the Exploration of Effective Connectivity in Functional Brain Imaging. *Front. Comput. Neurosci.*, 2015, 9:50. doi: 10.3389/fncom.2015.00050. (2021 Impact factor: 3.387)
59. **Lawrence WC Chan***, Ying Liu, Tao Chan, Helen KW Law, SC Cesar Wong, Andy PH Yeung, KF Lo, SW Yeung, KY Kwok, William YL Chan, Thomas YH Lau, CR Shyu. PubMed-supported Clinical Term Weighting Approach for Improving Inter-Patient Similarity Measure in Diagnosis Prediction. *BMC Medical Informatics and Decision Making*, 2015, 15:43. (doi: 10.1186/s12911-015-0166-2) (2021 Impact factor: 3.298)
60. **Lawrence WC Chan***, YM Lai, Tao Chan. A Novel H.264-Supported Approach for Detecting and Classifying Hepatic Lesions in Computed Tomographic Images. *Current Medical Imaging Review* 11(3), 177-184, 2015. (Formerly: *Current Medical Imaging Reviews*; Currently: *Current Medical Imaging*; 2021 Impact factor: 1.315)
61. Sin TK, Yu AP, Yung BY, Yip SP, **Chan LW**, Wong CS, Rudd JA, and Siu PM*. Effects of long-term resveratrol-induced SIRT1 activation on insulin and apoptotic signalling in aged skeletal muscle. *Acta Diabetologica*, 2015, 1-13. (2021 Impact factor: 4.087)

62. Thomas WH Lui, Nancy BY Tsui*, **Lawrence WC Chan**, Cesar SC Wong, Parco MF Siu, Benjamin YM Yung*. DECODE: An Integrated Differential Co-expression and Differential Expression Analysis of Gene Expression Data. *BMC Bioinformatics*, 2015, 16:182. (doi:10.1186/s12859-015-0582-4) (2021 Impact factor: 3.307)
63. Fengfeng Wang, **Lawrence W.C. Chan***, Nancy B.Y. Tsui, S.C. Cesar Wong, Parco M. Siu, SP Yip, Benjamin Y.M. Yung. Co-expression Pattern Analysis of NPM1-Associated Genes in Chronic Myelogenous Leukemia. *BioMed Research International*, 2015. Article ID 610595. (<http://dx.doi.org/10.1155/2015/610595>) (2021 Impact factor: 3.246)
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65. Fengfeng Wang, William C.S. Cho, **Lawrence W.C. Chan***, S.C. Cesar Wong, Nancy B.Y. Tsui, Parco M. Siu, Benjamin Y.M. Yung. Gene Network Exploration of Crosstalk between Apoptosis and Autophagy in Chronic Myeloid Leukemia. *BioMed Research International*, 2014. Article ID 459840. (<http://dx.doi.org/10.1155/2015/459840>) (2021 Impact factor: 3.246)
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74. Chuang Yuan, Christopher W. K. Lai, **Lawrence W. C. Chan**, Meyrick Chow, Helen K. W. Law, Michael Ying. The Effect of Diabetes Self-Management Education on Body Weight, Glycemic Control, and Other Metabolic Markers in Patients with Type 2 Diabetes Mellitus. *Journal of Diabetes Research*, Volume 2014 (2014), Article ID 789761. (2021 Impact factor: 4.061)
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87. Zhou Z, Gutierrez M, Documet J, **Chan L**, Huang HK, Liu B, The Role of a Data Grid in Worldwide Imaging-Based Clinical Trials, *J High Speed Networks* 16(1), 21-33, 2007.
88. Lai YM, Qin L, Hung VWY, Chan ST, **Chan LWC**, Chan KM. Trabecular bone status in ultradistal tibia under habitual gait loading: A pQCT study in postmenopausal women. *Journal of Clinical Densitometry* 9(2): 175-183, 2006. (2021 Impact factor: 2.963)
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91. Chan CW, **Chan WC**, Jayawardena AW, Harris CJ, Structure selection of neurofuzzy networks based on support vector regression, *International Journal of Systems Science*. Abingdon, UK, Taylor & Francis, 33(9): 715-722, 2002. (2021 Impact factor: 2.648)
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Conference Papers:

- Huiling SHAO, Xiangyan CHEN, Heng DU, Qilin MA, Zhiyu SHAO and Lawrence Wing Chi Chan, "A DEEP LEARNING EMPOWERED PENUMBRA-BASED PIPELINE FOR PREDICTING RESPONSIVENESS TO THROMBOLYTIC THERAPY IN ACUTE ISCHEMIC STROKE PATIENTS", 9th European Stroke Organisation Conference (ESOC) 24-26 May 2023, Munich, Germany.

- H. Shao, **L. Chan**, F. Chen, Q. Ma, Z. Shao and H. Du, "A Fast-Processing Pipeline for Three-dimensional Visualization of Acute Ischemic Stroke lesion topography," 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2021, pp. 3207-3214, doi: 10.1109/BIBM52615.2021.9669719.
- Rui Zhou, William CS Cho, Victor WS Ma, Wah Cheuk, Grace Yik-ka So, SC Cesar Wong, **Lawrence WC Chan** "ADAM9 plays a key role in the aggressive behavior of triple negative breast carcinoma and represents a potential treatment target". AACR 2020 Virtual Meeting II, Session PO.CL11.04, 4301/25, June 22, 2020.
- Rui Zhou, H. Z., William CS Cho, SC Cesar Wong, Mei Tian, **Lawrence WC Chan** "The role of ADAM9 and PI3K-dependent NF-kappa B pathway in promoting metastasis of triple-negative breast cancer". AACR 2019 Proceedings, No. 1116, Georgia World Congress Center Atlanta, Georgia, USA, March 29 - Apr 3, 2019 (Mar 2019).
- Perucho JAU, Lee EYP, Chan LWC, Gong N, Chan Q "Histogram analysis of intravoxel incoherent motion MRI in predicting chemoradiotherapy response in cervical cancer". The International Society for Magnetic Resonance in Medicine (ISMRM) 25th Annual Meeting & Exhibition, Honolulu, HI, 22-27 April 2017.
- **Lawrence WC Chan**, SC Cesar Wong, Keith WH Chiu "Ontological Features of Electronic Health Records Reveal Distinct Association Patterns in Liver Cancer", The First International Workshop on Semantics-Powered Data Analytics – BIBM2016, Shenzhen, China, 15-18 Dec, 2016.
- Tam BT, Yung BY, Wong CS, **Chan LW**, Tam EW, and Siu PM. Muscle compression causes reduction of oxidative phosphorylation (OXPHOS) subunits and increase in autophagy. FASEB Journal 30: 742.3, 2016.
- **Lawrence W. C. Chan**, Cesar Wong, Fei Meng, Fengfeng Wang, Benjamin Y. M. Yung, "Single cell imaging for exploring the relationship between glucose uptake, survival and metastasis in cancer", 4th International Conference and Exhibition on Cell & Gene Therapy, London, UK, 10-12 Aug, 2015.
- Benjamin Y. M. Yung, Xihong Lin, Godwin Yung, S. C. Cesar Wong, Fengfeng Wang, **Lawrence W. C. Chan**, "A big data analysis platform to unveil gene interactions in cancer", 4th International Conference and Exhibition on Cell & Gene Therapy, London, UK, 10-12 Aug, 2015.

- Wang F, **Chan L**, Law HKW, Cho WCS, Wong C, Yip SP, Yung BYM “In-Silico Analysis of EGFR-Associated microRNA Signature in Cancer”, The fifth workshop on Biomolecular Networks and Human Diseases – BIBM2013, Shanghai, China, 18-21 Dec, 2013.
- Wong SCC, Au TCC, Chan CML, Tsui NBY, **Chan LWC**, Yung BYM, “Menstrual blood TAP1 I333V and D637G gene polymorphisms are associated with less risk to develop high-grade cervical intraepithelial neoplasia”, the American Association for Cancer Research Annual Meeting 2014, San Diego, California, April 5-9, 2014.
- **Chan L**, Pang B, Shyu CR, Chan T, Khong PL, “Fast GPU Algorithm for Analyzing Effective Connectivity in Functional Brain Imaging”, 2013 The 3rd IFAC International Conference on Intelligent Control and Automation Science (ICONS 2013), Chengdu, China, September 2-4, 2013.
- Chow M, **Chan L**, “Clinical Decision Support using Traditional Chinese Medicine (TCM) Ontology and Text Similarity”, The 11th International Congress on Nursing Informatics, Montreal, Canada, 23-27 June, 2012
- **Chan LWC**, Chan T, Cheng LF, Mak WS, “Machine Learning of Patient Similarity: A Case Study on Predicting Survival in Cancer Patient after Locoregional Chemotherapy”, The first workshop on Knowledge Engineering, Discovery and Dissemination in Health – BIBM2010, Hong Kong SAR, China, 18-21 Dec, 2010
- **Chan LWC**, Sun Y, Chen R, “Clustering the Interacting Molecular and Clinical Atherosclerosis Risk Factors using Principal Components Analysis”, 2009 Summit on Translational Bioinformatics, San Francisco, USA, 15-17 March, 2009.
- **Chan LWC**, Benzie IFF, Lau TYH, Zheng YP, Wong KS, Liu Y, Chan ST, “Construction of Multidimensional Arterial Health Status Map based on Molecular and Clinical Measurements, Fuzzy System and Data Cubes”, 2008 AMIA Translational Bioinformatics Summit, San Francisco, California, 10-12 March 2008.
- **Chan LWC**, Wong AKS, Chan ST, Benzie IFF, Lau TYH, Liu Y, Zheng YP, “A Synergistic Multidisciplinary Knowledge Discovery and Clinical Decision Support Platform for Health Studies: Needs and Direction”, Health Research Symposium, Hong Kong SAR, 29 September, 2007.
- **Chan LWC**, Chan ST, Lau TYH, Zheng YP, Liu Y, Wong AKS, Benzie IFF, “A conceptual Multidisciplinary Analytical Model of Carotid and Cerebral Atherosclerosis based on Artificial

Intelligence”, Enhancing Healthcare Education, Research & Practice Symposium, Hong Kong SAR, China, 9-10 July 2007.

- Liu B, Law MY, Huang HK, Zee C, **Chan LW**, “A DICOM-RT ePR radiation therapy information system for managing brain tumor patients”, Imaging Informatics and Standards, SPIE International Symposium: Medical Imaging, San Diego, USA, 11-16 February 2006.
- Huang HK, Zhang A, Liu B, Zhou Z, Documet J, King N, **Chan LWC**, “Data Grid for Large-Scale Medical Image Archive and Analysis”, Proceedings of the 13th ACM International Conference on Multimedia, Singapore, November 6-11, 2005.
- **Chan LWC**, Huang HK, Cao F, Zhou Z, Law MYY, Tang FH, "A Consistent and Repeatable Clinical Protocol for High Performance International Internet-2 Connection in Remote Medical Image Transmission", Scientific paper: SSM21-03, Radiological Society of Northern America, 90th Scientific Assembly, Chicago, Illinois, 2004.
- Tang FH, **Chan LWC**, Wong P, "An Intelligent Detection of Idiopathic Scoliosis in Chest Computed Radiography Under Picture Archiving and Communication System (PACS) Environment", InfoRad: 9113DS-i, Radiological Society of Northern America, 90th Scientific Assembly, Chicago, Illinois, 2004.
- Tang FH, Lee A, **Chan LWC.**, Law MYY, "Multi-dimensional Intelligence Integrated Server for Distributed Picture Archiving and Communication Systems", InfoRad: 9613PACS-i, Radiological Society of Northern America, 90th Scientific Assembly, Chicago, Illinois, 2004.
- Law MYY, **Chan LWC**, Huang HK, Zhang X, Sun J, "Distribution of DICOM-RT ePR-based Radiotherapy Information", InfoRad: 9305EMR-i, Radiological Society of Northern America, 90th Scientific Assembly, Chicago, Illinois, 2004.
- Law MYY, Huang HK, **Chan LWC**, Zhang X, Sun J, "The Development and Implementation of a Prototype DICOM-based Radiotherapy Information System", Scientific poster: 092ORI-p, Radiological Society of Northern America, 90th Scientific Assembly, Chicago, Illinois, 2004.
- **Chan LWC**, Cao F, Zhou M, Hau SK, "Connectivity Issues and Performance Monitoring of International Internet-2 in Tele-Imaging Consultation", Education Exhibit: 0152RI, Radiological Society of Northern America, 89th Scientific Assembly, Chicago, Illinois, 2003.

- **Chan LWC**, Li R, Leung K, Hau SK, Wong ECH, "International Internet2 Connectivity Requirements for Tele-Imaging Consultation", PACS and Integrated Medical Information Systems: Design & Evaluation, SPIE International Symposium: Medical Imaging, San Diego, USA, 15-20 February 2003.
- Law MYY, **Chan WC**, Huang HK, Tang FH, "Expanding a Clinical PACS for Education and Research in a University Setting", InfoRad: 9208ED, Radiological Society of Northern America, 89th Scientific Assembly, Chicago, Illinois, 2003.

Book Chapters:

- **Chan LWC**, Chan ST, Lau TYH, Zhang YP, Liu Y, Wong AKS, Benzie IFF. A Conceptual Multidisciplinary Analytical Model of Carotid and Cerebral Atherosclerosis based on Artificial Intelligence. In: Wong J, Ng JK, Tsang KF, Tsang P, Wang FL (Eds.), Emergency Services and Healthcare Informatics, City University of Hong Kong, pp. 52-63, 2011.
- **Chan LWC**, Chan ST, Zheng YP, Wong AKS, Liu Y, Benzie IFF, DICOM-based Multidisciplinary Platform for Clinical Decision Support: Needs and Direction. In: Liu Y, Sun A, Loh HT, Lu WF, Lim E-P (Eds.), Advances of Computational Intelligence in Industrial Systems, Studies of Computational Intelligence, Springer: Berlin / Heidelberg, vol. 116, pp.191-212, 2008.
- Lai YM, **Chan WC**, Regional differences in cortical bone status in long bone shaft under habitual loading evaluated pQCT, quantitative backscattered electron imaging and polarized light microscopy. LING QIN, HK GENANT et al. (Ed.): Advanced Bioimaging Technologies in Assessment of Quality of Bone and Scaffold Biomaterials. Springer, 2006.

Invited speech:

Lawrence Chan, AI-based extraction and clustering analysis of liver lesion image features. The 7th Hong Kong International Oncology Symposium, Hong Kong, 7-8 November, 2020.

<https://youtu.be/9yRC20fWI2Y>

Lawrence Chan, Biomedical Big Data Analytics – Current Trend and New Perspective. International Conference on Artificial Intelligence and Computer Engineering 2016, Wuhan, 18-19 June 2016. (Keynote Speech)

Lawrence Chan, Bioinformatics characterization of molecular imaging probes. Biomedical Engineering International Conference 2014, Hong Kong Productivity Council, 4 -6 December 2014. (Keynote Speech)

Chan LWC, Next-Generation Search Engine for PACS. Healthcare Information Exchange—How Public Meets Private? HKCEC, July 15, 2009.

RESEARCH GRANTS:

External Research Grants:

Huawei Technologies Co. Ltd. Collaborative Research 2021 (PolyU Ref.: ZGBH). HK\$745,294 awarded, HK\$372,647 from UGC matching, Total: HK\$1,117,941

On-going project

“AI automatic medical image analysis and lesion detection”

PI: **Chan Wing Chi**, Co-I: Wong Cesar Sze-Chuen, Chung Fu-lai Korris

General Research Fund 2020-2021 (15102220). HK\$1,195,542 awarded.

On-going project

“Unveiling the pathogenic mechanisms of tuberculous meningitis caused by hypervirulent Mycobacterium tuberculosis strains using multi-omic analysis coupled with a multiple fluorescent zebrafish infection model”.

PI: Siu, Kit Hang, Co-I: **Chan, Wing Chi Lawrence**, Ma, Alvin CH, Zhang, Ying.

ITF 2020-2022. HK\$1,393,110 awarded.

On-going project

“Development of a patient stratification software tool for identifying nasopharyngeal carcinoma patients for adaptive radiation therapy”.

PI: Jing Cai, Co-I: **Chan Wing Chi**.

General Research Fund 2019-2020 (PolyU 151048/19M). HK\$1,041,432 awarded.

Project duration: 36 months. On-going project

“Atropine mediated proteins in myopia control: Insights from a new mammalian guinea pig model using an integrated next-generation proteomics strategy”.

PI: Lam Chuen, Co-I: To Chi-ho, Sally McFadden, Zhao Qian, **Chan, Wing Chi**, Dennis TSE Yan Yin, Henry CHAN Ho-lung.

Health and Medical Research Fund 2017-2018 (16172561). HK\$100,000 awarded

“Radiomics-based Case Retrieval Algorithm Supported by Deep Learning of Image Feature Clusters of Hepatic Pathology in Computed Tomography”

PA: **Chan Wing Chi**, Co-A: Wong Cesar Sze-Chuen, Chiu Wan Hang Keith

UICP 2018-2020 (ITF: UIM/354). HK\$2,300,000 awarded.

Project duration: 24 months. On-going project

“Humanized ARB-101 Monoclonal Antibody Targeted Therapy Against Malignant Gastrointestinal Cancers: Proof of Concept Study”.

PI: Cesar Wong, Co-I: William Tai, **Chan Wing Chi**.

General Research Fund 2016-2017 (17119916). HK\$570,115 awarded.

Project duration: 24 months. On-going project

“Characterising and quantifying intratumour heterogeneity in cervical cancer with intravoxel incoherent motion diffusion-weighted MRI”.

PI: Lee, Elaine Yuen Phin, Co-I: **Chan, Wing Chi**, Dr Hui, Sai Kam, Prof Ngan, Hextan Yuen Sheung.

RGC Collaborative Research Fund 2014-2015 (Equipment, C7018-14E). HK\$4,000,000 awarded

“Micro-PET for pre-clinical molecular imaging research in Hong Kong”

PI: Pek-Lan Khong, Co-PI: Benjamin Yung, Cesar Wong, **Chan Wing Chi**, and other 14 Co-PIs

Health and Medical Research Fund 2014-2015 (02131026). HK\$1,000,000 awarded

“Functional Role of MicroRNAs in EGFR-Targeted Therapy Resistance in Non-Small Cell Lung Cancer”

PA: **Chan Wing Chi**, Co-A: Benjamin Yung, Cesar Wong, Helen Law, Lam Chan, Wan He

Health and Medical Research Fund 2014-2015 (14130462). HK\$1,000,000 awarded

“Ecological relationship between Legionella and biofilm communities in potable water distribution system”

PA: Leung Hang Mei Polly, Co-A: Mui Kwok Wai, Yip Shea Ping, **Chan Wing Chi**

General Research Fund 2011-2012 (511811). HK\$783,374 awarded.

Project duration: 36 months. Completed project

“Clinical Decision Support using Biomedical Ontology and Literature Supported Patient Similarity for Diagnostic and Prognostic Pattern Discovery from Electronic Health Records”.

PI: **Chan Wing Chi**, Co-I: Liu Ying, Benzie Iris Frances Forster, Chan Tao, Shyu Chi-Ren.

Internal Research Grants:

Internal Grant for Proposals Rated 3.5 in GRF 2015-2016, Funding Source: Hong Kong Polytechnic University (G-YBK3). HK\$159,660 awarded.

Project duration: 12 months. Ongoing project

“A Binary-Descriptor Method for Identifying Multiple Co-expression Signatures with Unique Biological Contexts in Cancer”.

PI: **Lawrence W.C. Chan**, Co-I: Sze Chuen Cesar Wong, Yat Ming Yung.

PolyU Internal Fund: Project of Strategic Importance 2014-2015. HK\$4,000,000 awarded

“A multidisciplinary research on cancer and its metabolic risk factor: from computational characterisation, functional discovery to clinical diagnostics development”

Team leader: Benjamin Yung, Team members: Sheaping Yip, Parco Siu, Cesar Wong, **Chan Wing Chi**, Winnie Kam

Internal Grant for Proposals Rated 3.5 in GRF 2012-2013, Funding Source: Hong Kong Polytechnic University (G-YL61). HK\$160,400 awarded.

Project duration: 18 months. Completed project

“Molecular Interaction Set Enrichment Analysis of Differential Pathway Patterns”.

PI: **Lawrence W.C. Chan**, Co-I: Shea-ping Yip, Yat Ming Yung.

Dean’s Reserve, FHSS, Hong Kong Polytechnic University (87U7). HK\$326,000 awarded.

Project duration: not specified. On-going project

“Bioinformatics-based analysis of complex diseases”.

PI: **Chan Wing Chi**, Co-I: Yip Shea Ping.

Competitive Research Grants for Newly Recruited Junior Academic, Funding Source: Hong Kong Polytechnic University (A-PC0B), HK\$150,000 awarded.

Project duration: 18 months. Completed project

“Development of a UMLS-integrated Ontology-based Similar ePR Search Engine”.

PI: **Lawrence W.C. Chan**, Co-I: Iris F.F. Benzie, Phoebe S.T. Chan, Y. Liu.

Internal Competitive Research Grants - Single Department, Funding Source: Hong Kong Polytechnic University (A-PH74). HK\$120,000 awarded.

Project duration: 12 months. Completed project

“Artificial intelligent modelling of inter-relationships between biomarker profile and haemodynamic features of atherosclerosis in Type II Diabetes Mellitus”.

PI: **Lawrence W.C. Chan**, Co-I: Iris F.F. Benzie, Phoebe S.T. Chan, Thomas Y.H. Lau.

Internal Grant for Proposals Rated 3.5 in GRF 2008-2009, Funding Source: Hong Kong Polytechnic University (A-SA33). HK\$150,000 awarded.

Project duration: 12 months. Completed project

“Sketching a Multi-dimensional Arterial Health Status Map based on Fuzzy Expert System, Health Domain Expertise and Published Relative Risk Findings”.

PI: **Lawrence W.C. Chan**, Co-I: Iris F.F. Benzie, Phoebe S.T. Chan, Thomas Y.H. Lau, Y. Liu, Y.P. Zheng.

RESEARCH AWARDS AND PATENTS:

Research Awards:

Silver Award in the 53rd World Exhibition of Innovation, Research and New Technology: Tang FH, Law MYY, Lee A, **Chan L**, Mobile Image Distribution in Medical Picture Archiving and Communication System, 2004.

Certificate of Merit, in recognition of the excellence of InfoRad exhibit: Tang FH, Lee A, Law MYY, **Chan LWC**, Mobile Accessing Controller for Enterprise Picture Archiving and Communication System using Multiple Wireless Communication Modes, Radiological Society of Northern America, 89th Scientific Assembly, Chicago, Illinois, 2003.

Patents:

Wing Chi CHAN, Synergistic markers for anti-propensity prediction of clinical decision,

US Non-Provisional Patent, 2022-09-30, P23626US01/34577-124; 17/936,892

陈颖志, 用于临床决策的反倾向预测的协同标记

China Invention Patent, 2022-10-08, P23626CN00; 202211221439.8; 2022100801793830

The invention is an algorithm for generating the synergistic markers that provide the anti-propensity prediction of treatment option based on the deviation between the treatment and control groups in the associations between the covariates. The algorithm includes (i) generating a matrix of covariate association level differences, (ii) computing iteratively the candidate values of the cumulative association level difference for prioritizing covariates to enter an ordered list, (iii) deriving the synergistic markers that correspond to the cumulative association level among a set of covariates in the ordered list, and (iv) finding the number of covariates used for generating the synergistic markers that achieve the optimal performance in predicting the treatment option.

Chan LWC, Benzie IFF, Fuzzy System for Cardiovascular Disease and Stroke Risk Assessment, Chinese Patent, 14 May, 2014. (CN101645142B)

A Fuzzy-logic algorithm was developed by aggregating the published associations of actionable and non-actionable risk factors with cardiovascular disease and stroke to a risk score. The risk assessment system based on such algorithm has a flexible structure, which allows the adaptive incorporation of newly discovered risk factors to the risk score calculation. The system has been launched at <http://www.polyu.edu.hk/bmi/vhealth.swf> (English version) and <http://www.polyu.edu.hk/bmi/vhealthc.swf> (Chinese version). The daily monitoring of cardiovascular disease and stroke risk is of particularly importance to the high-risk group, such as Diabetes patients.

Tang FH, **Chan LWC**, An Intelligent-Enhanced System for Early Detection of Idiopathic Scoliosis in Chest Radiography, Chinese Patent, 21 Nov, 2007. (CN100349548C)

Cobb angle measured from chest radiograph is widely used for assessing scoliosis. The intraobserver and interobserver variability and low image quality limit the validity and consistency of the measurement results. An intelligence system was developed to generate an index for scoliosis. We examined the consistency of the automatically generated index and its correlation with Cobb angle. It has been proved that the index can be used to assess the extent of spinal curvature rather than manual measurement on radiographs.

SUPERVISION:

PhD Graduates:

Dr. Wang Fengfeng (2014)	Structural Analysis of Gene Co-expression in Chronic Myelogenous Leukemia
Dr. Liu Sau Fan Eva (2017)	Vector-Model-Based Case Retrieval Approach for Improving and Expediting Optimization in Intensity Modulated Radiotherapy
Dr. Zhou Rui (2021)	The Role of ADAM9 in Triple-Negative Breast Cancer Progression

DHSc Graduates (Dissertation):

Chan King Yu (2016) **Detection of pre-intradialytic hypotension during haemodialysis in patients with end stage renal disease**

MSc in Health Technology (Medical Imaging and Radiation Science) Graduates (Dissertation):

Liu Pui Sang Diana (2010) **Clinical Decision Support Model in Rectal Contrast CT for Preventing Bowel Perforation and Optimizing the Image Quality for Diagnosing Colorectal Carcinoma**

MSc in Health Care (Medical Imaging & Radiation Technology) Graduates (Dissertation):

Poon Yiu Man (2010) **Intelligent landmark-assisted CT image reformation aligning with the neuro-ocular plane and its perpendicular**

MSc in Health Care (Nursing) Graduates (Dissertation):

Choy Ming Kin (2010) **Examining the incentives and barriers in nurses' use of the electronic health record (EHR) in Hong Kong**

Current PhD Students:

Shao Huiling

Huang Mohan

DHSc Students (Dissertation):

Mak Chung Yin

NG Andrew Tik Ho

Postdoctoral Fellow:

Dr. Lei Pinggui (Hong Kong Scholars)