Russell W. Chan, Ph.D.

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EDUCATION/TRAINING

Postdoc in Neuroscience and Ophthalmology, NYU Langone Health 2022

Postdoc in Neurology and Neurological Sciences, Stanford University 2020

Postdoc in Electrical and Electronic Engineering, The University of Hong Kong (HKU) 2017

Ph.D. in Electrical and Electronic Engineering, HKU 2016

Dissertation: Functional Magnetic Resonance Imaging Investigation of Brain Connectivity

B.Eng. in Biomedical Engineering, HKU (1st in Faculty; First Class Honors) 2011

EXPERIENCE

Co-founder and CEO, E-SENSE Innovation and Technology Ltd. (esense-inno.tech) 2023 – present

- Leading 10+ PhDs, engineers, research associates, sales and staff in fund raising, R&D, engineering, commercialization, clinical trials, and sales of the next generation point-of-care vital organ biomedical imaging device (*medical grade*), resulting in numerous awards including the 50th International Exhibition of Inventions of Geneva Gold Medals with Congratulations of the Jury.
- Steering E-SENSE to revolutionize primary care practice by providing effective platforms for point-of-care vital organ health diagnostic screening and treatment monitoring, including brain, heart, lung, liver and kidney; ultimately striving to be the world's leading primary care biomedical imaging company.

Senior Consultant, Hong Kong Centre for Cerebro-cardiovascular Health Engineering (COCHE) (hkcoche.org) 2024 – 2025 *2023-2024 (part-time)*

- Advising, guiding, and addressing research, development, application, engineering, and commercialization needs of 20+ project teams and 16 spin-offs.

CEO, Hai Kang Life Corporation Ltd. (HKLife, haikanglife.com) 2023 – 2024

- Leading 30+ researchers, engineers, technicians, and staff in R&D, engineering, commercialization, and clinical trials of the next generation *BioRadar*® system – a point-of-care *in vitro* diagnostic (IVD) device
- Steering HKLife to revolutionize the practice of clinical diagnostics, providing effective platforms for point-of-care applications focused on personalized medicine and pre-emptive surveillance of emerging pathogens and diseases; ultimately striving to be the world's leading molecular diagnostics company

Co-founder and CTO, Gense Technologies Ltd. (gense.tech) *peak valuation: 20M+ USD* 2017 – 2023

- Leading 10+ researchers and engineers in scientific grant application
- Oversea research, development, application, and commercialization of portable biomedical imaging and spectroscopy systems (electrical impedance tomography and spectroscopy technologies) for health

referencing (including lung, liver, and kidney diseases).

- Involved in business development, pitch presentations, and fund raising, resulting in numerous awards including *2021 ICT Startup Grand Award, JUMPSTARTER 2022, Forbes Asia 100 To Watch 2022*

Postdoc in Neuroscience, NYU Langone Health (nie-lab.org and nivs-lab.org) 2020 – 2022

Prof. Shy Shoham (Neuroscience) and *Dr. Kevin Chan* (Ophthalmology)

- Design and implement neuroimaging and neuromodulation methods including optoacoustic imaging, magnetic resonance imaging, transcranial focused ultrasound, and optogenetic tools
- Investigate brain networks in humans, rodent models, glaucoma patients and rodent glaucoma models
- Study cerebral spinal fluid (CSF) flow in rodent models and rodent Alzheimer's disease models

Postdoc in Neurology, Stanford University (llab.stanford.edu) 2017 – 2020

Dr. Jin Hyung Lee (Neurology) and *Prof. Dwight Nishimura* (Electrical Engineering)

- Designed and implemented layer-specific optogenetic fMRI and electrophysiological recording methods
- Discovered distinct brain functional networks related to motion, Parkinson's disease, Alzheimer's disease and epilepsy using novel neuromodulation and neuroimaging approaches
- Established mesoscale layer-specific fMRI representation of neural activity

Ph.D./Postdoc in Electrical and Electronic Engineering, HKU (hku.hk/bisplab) 2011 – 2017

Prof. Ed X. Wu (Biomedical Engineering)

- Led the design and implementation of novel neuroimaging procedures namely optogenetic fMRI, resulting in four first author journal papers and media coverage
- Discovered hippocampus being a key brain functional connectivity hub related to learning and memory, and provided insights to Alzheimer's disease
- Demonstrated low frequency activities of excitatory neurons contribute to resting-state fMRI networks

Undergraduate project, Faculties of Engineering and Medicine, HKU 2010 – 2011

Prof. Ed X. Wu (Biomedical Engineering) and *Prof. Tao Chan* (Radiology)

- Developed a semi-automatic lesion tracking and measurement tool for monitoring treatment response of nasopharyngeal carcinoma (NPC) patients using PET/CT images

Research Assistant, Department of Diagnostic Radiology, HKU 2010

Dr. Mina Kim (Radiology)

- Participated in mathematical modeling of magnetization transfer MRI and data analysis of neuromyelitis optica patients using magnetization transfer MRI images

GRANTS, FELLOWSHIPS, AWARDS AND HONORS

Young Fellow, Hong Kong Academy of Engineering Science (HKAES)	2024
Hong Kong Engineering Science and Technology Award, HKAES (1st ever in Hong Kong)	2023
CTO of the Year, Revive Tech Asia Awards	2023
Hot Topic, ARVO (Top 2% abstracts)	2021
Murray and Jeanie Johnstone Travel Grant Award, ARVO	2021
Summa Cum Laude Award for twelve conference papers, ISMRM (Top 3% of ~8,000 papers)	2015 – 2020
Junior Fellow, International Society of Magnetic Resonance in Medicine (ISMRM)	2018
Young Investigator Award (1st place), OCSMRM	2018
Magna Cum Laude Award for thirteen conference papers, ISMRM (Top 15% of ~8,000 papers)	2012 – 2018
Postgraduate Scholarship, HKU	2011 – 2015
Educational Stipend Award, ISMRM	2012 – 2014
University and Departmental Conference Grants, HKU	2012 – 2013
Williamson Prize, HKU (Best graduating student of ~500 students in Engineering)	2010 – 2011
Dean's Honors List, HKU (Top 3% of ~500 students in Engineering)	2008 – 2011

PROFESSIONAL ACTIVITIES AND SERVICES

Vice President, Hong Kong International Biotechnology Convention (BIOHK)	2023 – Present
Vice-Chair, Young Member Section, Hong Kong Academy of Engineering Sciences	2023 – Present
Lead of R&D focus group, Hong Kong Institute of Engineers (HKIE) Biomedical Division	2022 – Present
Exco, Hong Kong Institute of Engineers (HKIE) Biomedical Division	2022 – Present
Review Editor (Brain Imaging Methods) for Frontiers in Neuroscience and Neurology	2020 – Present
Reviewer for Annual International Conference of IEEE-EMBS	2017 – Present
Reviewer for ISMRM	2017 – Present
Ad hoc reviewer of ***npj Imaging (Nature Partner Journal)***	2023
Ad hoc reviewer of ***Nature Protocols***	2021
Junior Fellow Observer for the Annual Meeting Program Committee of ISMRM	2019
Organizer of ISMRM Member-Initiated Symposium - *Targeting Alzheimer's Disease: Multiscale & Multimodal Imaging from Electrons to Neural Systems*	2019
Stanford University Trainee of **Preparing for Faculty Careers (VPTL231)**	2019

INVITED LECTURES/SEMINARS

COCHE Symposium *Emerging Technologies for Cerebro-Cardiovascular Healthcare*, Hong Kong	2024
HKUST BIEN4110 *IVD and wearable diagnostics development process*, Hong Kong	2024
HKUST BIEN4110 *Career and personal development*, Hong Kong	2024
Medical and Health Roadshow III: Liver Screening, Macau	2023
HKAES HKEST Award Ceremony Lecture, Hong Kong	2023
University of Hawaii Cancer Center Seminar, USA	2023
HKIE CAD Summit, Hong Kong	2023
HKTDC Webinar – Post-SVB Fallout, USA	2023
HKU BME Seminar – Medical Device Project Management, Hong Kong	2023
Medical and Health Roadshow I: Lung Screening, Macau	2023
HKIE BMD Seminar, Hong Kong	2023
MSGH Liver Disease and Treatment Workshop, Macau	2022
International Forum of Chinese and Western Medicine Application on Cancer Treatment, Macau	2022
NYU Langone Tech4Health Seminars, USA	2022
CUHK Career Forum (Representing HKIE BMD), Hong Kong	2022
HKU Electrical and Electronic Engineering Seminar, Hong Kong	2022
NYU Langone Tech4Health Seminars, USA	2021
NYU Langone Tech4Health Seminars, USA	2020
UCLA Magnetic Resonance Research Labs Seminars, USA	2020
ISMRM Frontiers in Neuroscience: Preclinical MRI-X, Honolulu, USA	2017
HKU Frontiers of Magnetic Resonance Imaging – Physics and Applications, Hong Kong	2016

PROFESSIONAL FELLOWSHIP AND MEMBERSHIP

Junior Fellow, ISMRM	2018 – Present
Member, HKIE	2022 – Present
Member, ISMRM	2022 – Present
Trainee Member, ISMRM	2012 – 2021
Trainee Member, OCSMRM	2012 – 2021

TEACHING/MENTORING EXPERIENCE

Peer Mentor (Unofficial) in NYU Langone Health 2020 – 2022

- Mentored 1 doctoral student and 6 research associates by providing comments and recommendations
- Sarah Shaykevich, Chandni Rana, Mo Eltaeb, Royce Lee, Ryan Xue, Sarah Wu, Emily Tse

Teaching and mentoring development, Stanford University 2019

- Stanford University Trainee of Preparing for Faculty Careers (VPTL231)
- Certificate of Stanford Scientific Teaching Summer Institute

Peer Mentor (Unofficial) in BISP Lab, HKU (hku.hk/bisplab) 2013 – 2017

- Mentored 2 junior doctoral students by providing critical comments and recommendations
- Alex Leong, *Long-range projections coordinate distributed brain-wide neural activity*
- Eddie Wong, *Does ventral hippocampus influence auditory processing? An optogenetic fMRI study*

Residential Tutor in Lap-Chee College, HKU (lapcheecollege.hku.hk) 2012 – 2015

- Coached more than 100 students for personal growth and development
- Maintained good order & discipline
- Organized more than 10 events (up to 500 people) to promote cultural exchange
- Liaised with academic staff and students

Teaching Assistant of MEDE2007 Medical Imaging Course, HKU 2011 – 2014

- Held tutorials classes (up to 40 students)
  Summarized lecture, demonstrated experiments and coordinated group projects
- Guided students to appreciate medical imaging technology and their biomedical applications

Peer Mentor of Freshmen, Faculty of Engineering, HKU 2009 – 2011

- Mentored 6 engineering freshmen to ensure a smooth transition to university

PUBLICATIONS

Inventor of 10 patent families. Published 4 papers in prestige journals, including ***Proceedings of the National Academy of Sciences*** and ***Neuron***. Published more than 30 journal papers, and more than 80 conference papers. Summa Cum Laude Award for *12* ISMRM conference papers (Top 3% of ~8,000 accepted papers). Magna Cum Laude Award for *13* ISMRM conference papers (Top 15% of ~8,000 accepted papers).
Google Patent | Google Scholar

INTELLECTUAL PROPERTY

1. **Chan RW.** Wearable gesture recognition device and associated operation method and system. (Pending; HKST 18102884.5; PCT/CN2019/076312; US 16/976,542; EP 19761122.1; CN 201980028911.6) Google Patent
2. **Chan RW**, Minciullo L, Zouari F, Modak D, Chan PHJ. Electrical impedance tomography based liver health assessment. (Pending; HKST 32021027899.2; PCT/CN2022/082517) Google Patent
3. **Chan RW**, Zouari F, Minciullo L, Modak D, Chan PHJ. Electrical impedance tomography based lung assessment. (Pending; HKST 32021027897.6; PCT/CN2022/082511) Google Patent
4. **Chan RW**, Touboul A, Wong CS, Zouari F, Modak D, Chan PHJ. Electrical impedance tomography based diagnostic systems and methods. (Pending; HKST 32022046981.3; PCT/CN2023/073608) Google Patent
5. Wong CS, **Chan RW**, Zouari F, Modak D, Chan PHJ. System and methods for determining kidney condition based on electrical impedance tomography. (Pending; HKST 32022047017.5; PCT/CN2023/073584) Google Patent
6. Wong CS, **Chan RW**, Lee MVR, Ho CM, Yeung CT, Sin V, Mui YW, Cheung TH, Lo YH, Zouari F, Modak D, Chan PHJ. Wearable device for electrical impedance tomography. (Pending; HKST 32022047056.3; PCT/CN2023/073460) Google Patent
7. Modak D, Lee WH, Zouari F, Touboul A, Cheung PT, Wong CS, **Chan RW**. System and method for performing 3D electrical impedance tomography. (Pending; HKST 32022063221.2)
8. **Chan RW**, Lawson MYMC, Modak D, Wong CS. Electrical impedance tomography based heart assessment. (Pending; US 63/428,222.)
9. **Chan RW**, Touboul A, Zouari F, Khurana P, Modak D, Lawson MYMC, Cheung PT, Lam YH, Ho CM, Lui H, Wong CS. Electrical impedance tomography and/or spectroscopy based systems and methods. (Pending; US 63/385,851)
10. **Chan RW**, Cao P, Touboul A, Zeng S, Raza MO, Zouari F, Wong CS. Machine learning based techniques for electrical impedance tomography. (Pending; US 63/493,376)

PEER-REVIEWED JOURNAL PAPERS

1. **Chan RW**, Edelman BJ, Tsang SY, Gao K, Yu AC. Opportunities for System Neuroscience. **Adv Neurobiol.** 2024;41:247-253. doi: 10.1007/978-3-031-69188-1_10. PMID: 39589717.

2. **Chan RW*,** Hamilton-Fletcher G, Edelman BJ, Faiq MA, Sajitha TA, Moeller S, Chan KC. NOise Reduction with DIstribution Corrected (NORDIC) principal component analysis improves brain activity detection across rodent and human functional MRI contexts. **Imaging Neurosci (Camb).** 2024 Oct 24;2:1-18. doi: 10.1162/imag_a_00325. PMID: 39463889; PMCID: PMC11506209.

3. Zouari F, Cheung PT, Touboul A, Kwok WC, Sin V, Wong EC, Zhou IY, Tam TCC, ***Chan RW**. Global and regional lung function assessment using portable electrical impedance tomography (EIT) system: clinical study. **Annu Int Conf IEEE Eng Med Biol Soc.** 2023 Jul;2023:1-4. doi: 10.1109/EMBC40787.2023.10340136. PMID: 38082917.

4. Li JHW, Touboul A, Zouari F, Cheung PT, Wei E, Wong EC, Zhou IY, Yuen MF, Seto WK, Mak LY, ***Chan RW**. Portable electrical impedance tomography (EIT) system stages non-alcoholic fatty liver disease for potential screening and monitoring at home. **Annu Int Conf IEEE Eng Med Biol Soc.** 2023 Jul;2023:1-4. doi: 10.1109/EMBC40787.2023.10339955. PMID: 38083484.

5. Cheung PT, Zouari F, Touboul A, Ho CM, Sin V, Wong EC, Yuwen Zhou I, Yap DYH, ***Chan RW**. Electric impedance tomography enables portable and non-invasive approach to screen and monitor chronic kidney disease. **Annu Int Conf IEEE Eng Med Biol Soc.** 2023 Jul;2023:1-4. doi: 10.1109/EMBC40787.2023.10340412. PMID: 38083546.

6. Zeng S, Kwok WC, Cao P, Zouari F, Yun Lee PT, **Chan RW**, Touboul A. Deep learning based reconstruction enables high-resolution electrical impedance tomography for lung function assessment. **Annu Int Conf IEEE Eng Med Biol Soc.** 2023 Jul;2023:1-4. doi: 10.1109/EMBC40787.2023.10340392. PMID: 38083133.

7. Raza O, Lawson M, Zouari F, Wong EC, ***Chan RW**, Cao P. CycleGAN with mutual information loss constraint generates structurally aligned CT images from functional EIT images. **Annu Int Conf IEEE Eng Med Biol Soc.** 2023 Jul;2023:1-4. doi: 10.1109/EMBC40787.2023.10340711. PMID: 38082767.

8. Wang Z, Nawaz M, Khan S, Xia P, Irfan M, Wong EC, **Chan RW**, Cao P. Cross modality generative learning framework for anatomical transitive Magnetic Resonance Imaging (MRI) from Electrical Impedance Tomography (EIT) image. **Comput Med Imaging Graph**. 2023 Sep;108:102272. doi: 10.1016/j.compmedimag.2023.102272. Epub 2023 Jul 20. PMID: 37515968.

9. Bang JW, **Chan RW**, Parra C, Murphy MC, Schuman JS, Nau AC, Chan KC. Diverging patterns of plasticity in the nucleus basalis of Meynert in early- and late-onset blindness. **Brain Commun.** 2023 Apr 11;5(2):fcad119. doi: 10.1093/braincomms/fcad119. PMID: 37101831; PMCID: PMC10123399.

10. Zouari F, Oon WY, Modak D, Lee WH, Kwok WC, Cao P, Lee WN, Tam TCC, Wong EC, ***Chan RW**. Affordable, portable and self-administrable electrical impedance tomography enables global and regional lung function assessment. **Sci Rep.** 2022 Nov 30;12(1):20613. doi: 10.1038/s41598-022-24330-2. PMID: 36450830.

11. **Chan RW**, Cron GO, Asaad M, Edelman BJ, Lee HJ, Adesnik H, Feinberg D, Lee JH. Distinct local and brain-wide networks are activated by optogenetic stimulation of neurons specific to each layer of motor

cortex. **NeuroImage**. 2022 Sep 20;263:119640. doi: 10.1016/j.neuroimage.2022.119640. PMID: 36176220.

12. Touboul A, Zouari F, Minciullo L, Modak D, Lee RMV, Wong EC, Yuen MF, Seto WK, Mak LY, ***Chan RW**. Unmixing multi-spectral electrical impedance tomography (EIT) predicts clinical-standard controlled attenuation parameter (CAP) for nonalcoholic fatty liver disease classification: a feasibility study. **Annu Int Conf IEEE Eng Med Biol Soc.** 2022 Jul;2022:576-579. doi: 10.1109/EMBC48229.2022.9871313. PMID: 36086553.

13. ***Chan RW**, Lee RP, Wu SY, Tse EL, Xue Y, Moeller S, Chan KC. NOise Reduction with DIstribution Corrected (NORDIC) PCA improves signal-to-noise in rodent resting-state and optogenetic functional MRI. **Annu Int Conf IEEE Eng Med Biol Soc.** 2022 Jul;2022:1847-1850. doi: 10.1109/EMBC48229.2022.9871459. PMID: 36086476.

14. Zouari F, Oon WY, Modak D, Kwok WC, Cao P, Lee WN, Tam TCC, Wong EC, ***Chan RW**. Standalone electrical impedance tomography predicts spirometry indicators and enables regional lung assessment. **Annu Int Conf IEEE Eng Med Biol Soc.** 2022 Jul;2022:3277-3280. doi: 10.1109/EMBC48229.2022.9871104. PMID: 36085816.

15. Yap DYH, Ma EKY, Oon WY, Lee WH, Li WH, Ho CM, Gautama B, **Chan RW**, Wong EC. Bio-conductivity characteristics of chronic kidney disease stages examined by portable frequency-difference electrical impedance tomography. **Annu Int Conf IEEE Eng Med Biol Soc.** 2022 Jul;2022:3378-3381. doi: 10.1109/EMBC48229.2022.9871377. PMID: 36086019.

16. Nawaz M, **Chan RW**, Malik A, Khan T, Cao P, Hand Gestures Classification using Electrical Impedance Tomography Images. **IEEE Sensors Journal**, 2022, doi: 10.1109/JSEN.2022.3193718.

17. **Chan RW**, Won Bang J, Trivedi V, Murphy MC, Liu P, Wollstein G, Schuman JS, Chan KC. Relationships between cerebrovascular reactivity, visual-evoked functional activity, and resting-state functional connectivity in the visual cortex and basal forebrain in glaucoma. **Annu Int Conf IEEE Eng Med Biol Soc.** 2021 Nov;2021:4037-4040. doi: 10.1109/EMBC46164.2021.9630904. PMID: 34892116.

18. Choy MK, Dadgar-Kiani E, Cron GO, Duffy BA, Schmid F, Edelman B, Assaad M, **Chan RW**, Vahdat S, Lee JH. Repeated hippocampal seizures lead to brain-wide reorganization of circuits and seizure propagation pathways. **Neuron**. 2021 Oct 26; 110, 1-16. Doi: 10.1016/j.neuron.2021.10.010

19. Edelman BJ, Ielacqua GD, **Chan RW**, Asaad M, Choy MK, Lee JH. High-sensitivity detection of optogenetically-induced neural activity with functional ultrasound imaging. **NeuroImage**. 2021 Nov 15; 242:118434. doi: 10.1016/j.neuroimage.2021.118434.

20. Leong ATL, Gu Y, Chan YS, Zheng H, Dong CM, **Chan RW**, Wang X, Liu Y, Tan LH, Wu EX. Optogenetic fMRI interrogation of brain-wide central vestibular pathways. **Proceedings of the National Academy of Sciences.** 2019 May 14;116(20):10122-10129. doi: 10.1073/pnas.1812453116.

21. Wang X, Leong ATL, **Chan RW**, Wu EX. Thalamic low frequency activity facilitates resting-state cortical interhemispheric MRI functional connectivity. **Neuroimage.** 2019 Jul 9. S1053-8119(19)30560-9. doi: 10.1016/j.neuroimage.2019.06.063.

22. Leong ATL[#], Dong CM[#], Gao PP[#], **Chan RW[#]**, To A, Sanes DH, Wu EX. Optogenetic afMRI reveals the effects of visual cortical inputs on auditory midbrain response. **Scientific Reports.** 8:8736 (2018).

23. Dong CM, Leong ATL, Manno FAM, Lau C, Ho LC, **Chan RW**, Feng Y, Gao PP, Wu EX. Functional MRI Investigation of Audiovisual Interactions in Auditory Midbrain. **Conf Proc IEEE Eng Med Biol Soc. 2018** Jul; 2018:5527-5530.

24. **Chan RW[#]**, Leong ATL[#], Ho LC, Gao PP, Wong EC, Dong CM, Chan YS, Tsia KK, Lim LW, Wu EX, Low frequency hippocampal-cortical activity drives brain-wide resting-state functional MRI connectivity. **Proceedings of the National Academy of Sciences.** 2017 Aug 15;114(33):E6972-E6981. doi: 10.1073/pnas.1703309114.
    RESEARCH NEWS AND FEATURES: Sep 2017 media coverage (> 15 media)
    Ranked 2nd in top 10 Neuroscience News Stories of 2017 by technologynetworks.com

25. Leong ATL[#], **Chan RW[#]**, Gao PP, Chan YS, Tsia KK, Yung WH, Wu EX, Long-range projections coordinate distributed brain-wide neural activity with a specific spatiotemporal profile. **Proceedings of the National Academy of Sciences.** 2016 Dec 20;113(51):E8306-E8315. doi: 10.1073/pnas.1616361113.
    RESEARCH NEWS AND FEATURES: Jan 2017 media coverage (> 10 media)

26. **Chan RW**, Ho LC, Zhou IY, Gao PP, Chan KC, Wu EX. Structural and Functional Brain Remodeling during Pregnancy with Diffusion Tensor MRI and Resting-State Functional MRI. **PLoS One.** 2015 Dec 10;10(12):e0144328.

27. Gao PP, Zhang JW, **Chan RW**, Leong AT, Wu EX. BOLD fMRI study of ultrahigh frequency encoding in the inferior colliculus. **Neuroimage.** 2015 Jul 1;114:427-37.

28. Zhou IY, Liang YX, **Chan RW**, Gao PP, Cheng JS, Hu Y, So KF, Wu EX. Brain Resting-state functional MRI Connectivity: Morphological Foundation and Plasticity. **Neuroimage.** 2014 Jan 1;84:1-10.

29. Chan KC, Fan SJ, **Chan RW**, Cheng JS, Zhou IY, Wu EX. In vivo Visuotopic Brain Mapping with Manganese-enhanced MRI and Resting-state Functional Connectivity MRI. **Neuroimage.** 2014 Apr 15;90:235-45.

30. Cheng JS, Gao PP, Zhou IY, **Chan RW**, Chan Q, Mak HK, Khong PL, Wu EX. Resting-state FMRI using Passband Balanced Steady-state Free Precession. **PLoS One.** 2014 Mar 12;9(3):e91075.

31. Zhou IY, **Chan RW**, Ho LC, Wu EX. Longitudinal Metabolic changes in the Hippocampus and Thalamus of the Maternal Brain revealed by Proton Magnetic Resonance Spectroscopy. **Neurosci Lett.** 2013 Oct 11;553:170-5.

(#contributed equally to this work; *corresponding author)

PEER-REVIEWED CONFERENCE PAPERS

1. Bahukhandi R, Lawson M, Li J, Huen V, **Chan RW**. Towards Biomedical Imaging at Home: Machine Learning System for Enhancing Efficacy of Miniaturized Point-of-Care EIT Device. IEEE EMBS R10 Smart Health Symposium, Hong Kong, Hong Kong, 2025. (**Oral Presentation**).

2. Lawson M, Kwok WC, Wong EC, Chan KWY, Fung E, **Chan RW**. Simultaneous Heart and Lung Imaging Using Electrical Impedance Tomography for Community-Level Screening IEEE EMBS R10 Smart Health Symposium, Hong Kong, Hong Kong, 2025. (**Oral Presentation**).

3. Rettenmeier C, Edwards-Calma K, Lim U, **Chan RW**, Li JHW, Kon Z, Buras M, Yu Z, Marchand LL, Stenger VA, Kwee S. MRI-PDFF evaluation of frequency difference electrical impedance tomography for low-cost, non-invasive liver fat quantification. 2025 proceedings of International Society of Magnetic Resonance in Medicine. (E-Poster Presentation).

4. Shaykevich S, **Chan RW**, Chan KC, Campbell RE, Razansky D, Shoham S. Towards multimodal functional imaging of brain dynamics using hybrid near-infrared optoacoustic and fluorescence imaging, **Proc. SPIE** PC12828, Neural Imaging and Sensing 2024, PC128280C (13 March 2024); https://doi.org/10.1117/12.3003298

5. Kwok WC, Zouari F, Cheung PT, Touboul A, Sin V, Wong EC, Zhou IY, Tam TCC, **Chan RW**. Evaluation of the spatial spirometry indicators using electrical impedance tomography. **European Respiratory Journal** Sep 2023, 62 (suppl 67) PA3551; DOI: 10.1183/13993003.congress-2023.PA3551

6. Sajitha TA, Parra C, Faiq MA, **Chan RW**, Lee CH, Zhang J, Wollstein G, Schuman JS, Chan KC; Multi-parametric MRI demonstrates age-related changes in the human eye. **Invest. Ophthalmol. Vis. Sci.** 2023;64(9):PB0085.

7. Cheung PT, Zouari F, Touboul A, Ho CM, Sin V, Wong EC, Zhou IY, Yap D, **Chan RW**, #4110 BIO-CONDUCTIVITY MEASUREMENTS ENABLE PORTABLE AND SELF-ADMINISTRATED CHRONIC KIDNEY DISEASE SCREENING AND MONITORING, Nephrology Dialysis Transplantation, Volume 38, Issue Supplement_1, June 2023, gfad063a_4110, https://doi.org/10.1093/ndt/gfad063a_4110

8. Touboul A, Ho CM, Khurana P, Lam YH, Lee LY, Wong EC, Chan KC, Shih KC, Chan YK, **Chan RW**. Conductivity changes detected by portable electrochemical impedance spectroscopy can infer osmolarity of the tear film for potential screening and monitoring of dry eye disease (DED). **Annu Int Conf IEEE Eng Med Biol Soc.** 2023 (Poster Presentation)

9. Faiq MA, **Chan RW**, Sajitha TA, Chan KC. Effects of Aquaporin-4 Inhibition on Relative Cerebrovascular Reactivity using Resting-state Functional MRI. 2023 proceedings of International Society of Magnetic Resonance in Medicine. (**Oral Presentation**).

10. Sajitha TA, Lee RP, **Chan RW**, Hamilton-Fletcher G, Faiq MA, Chan KC. Isoflurane induced intraocular pressure elevation in ChAT-IRES-Cre mice. 38th Asia-Pacific Academy of Ophthalmology (APAO) Congress (Kuala Lumpur, Malaysia, 23 – 26 February 2023). (**Oral Presentation**).

11. Mak LYL., Li JH., Touboul A, Zouari F, Cheung PT, Wong EC, Zhou IY, Wei E, Yuen MF, **Chan RW**, Seto WK. Wearable technology utilizing an electrical impedance tomography (EIT) system for hepatic steatosis quantification and the role in ambulatory monitoring. **Journal of Hepatology**, 78, pp.S680-S681. (**Oral Presentation**)

12. Mak LY, Li JHW, Touboul A, Wong EC, Wei E, Yuen MF, Seto WK, **Chan RW**. Feasibility of Ambulatory Liver Fat Monitoring by Electrical Impedance Tomography Scan for Improving Hepatic Steatosis and Health Perception – A Pilot Study. Asian Pacific Association for the Study of the Liver (APASL) Annual Meeting 2023. (**Oral Presentation**)

13. Shaykevich S, **Chan RW**, Little JP, Razansky D, Chan KC, Shoham S. Multimodal functional optoacoustic tomography in awake and anesthetized mice, **Proc. SPIE PC12379**, Photons Plus Ultrasound: Imaging and Sensing 2023, PC123791F (9 March 2023); https://doi.org/10.1117/12.2650939

14. Zouari F, Touboul A, Cao P, Lee WN, Tam TCC, Wong EC, Kwok WC, **Chan RW**. Close-to-effortless breathing paradigm maps global and regional lung function using electrical impedance tomography cross-sectionally and longitudinally. **Chest**, VOLUME 162, ISSUE 4, SUPPLEMENT, A2671-A2672, OCTOBER 2022. https://doi.org/10.1016/j.chest.2022.08.2179 (Poster Presentation).

15. Yap D, Ma EKY, Oon WY, Zouari F, **Chan RW**, Wong EC. MO380: Bio-Conductivity Measurement for Electrical Impedance Tomography (EIT) in Chronic Kidney Disease—A Non-Invasive and Portable Monitoring Approach. **Nephrology Dialysis Transplantation**, Volume 37, Issue Supplement_3, May 2022, gfac069.013, https://doi.org/10.1093/ndt/gfac069.013 (**Oral Presentation**).

16. Zouari F, Minciullo L, Oon WY, Modak D, Cao P, Lee WN, Tam TCC, Wong EC, Kwok WC, **Chan RW**. Close-to-effortless breathing paradigm identifies lung function deterioration and monitors its recovery using a portable and self-administrable electrical impedance tomography system. 8th Asia Pacific Region

Conference (APRC) of the International Union Against Tuberculosis and Lung Disease, 2022. (**Oral Presentation**).

17. Zouari F, Oon WY, Modak D, Cao P, Lee WN, Tam TCC, Wong EC, Kwok WC, **Chan RW**. Standalone electrical impedance tomography system can infer spirometric indices providing global and regional lung function assessment. 26th Congress of the Asian Pacific Society of Respirology (APSR), 2022. (**Oral Presentation**)

18. Cheung PT, Zouari F, Touboul A, Sin V, Wong EC, **Chan RW**. 3D EIT Enables Global and Regional Spirometric Lung Function Assessment. TENCON 2022 - 2022 IEEE Region 10 Conference (TENCON), Hong Kong, Hong Kong, 2022, pp. 1-6, doi: 10.1109/TENCON55691.2022.9978086. (**Oral Presentation**).

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*Summa Cum Laude Award: top 3% of ~8,000 accepted papers

** Magna Cum Laude Award: top 15% of ~8,000 accepted papers