

大林慈濟醫院

主 題：慈濟醫學講座暨內視鏡換水大腸鏡學習中心國際研討會/大林慈濟醫院
日 期：2024年12月07日(六) 08:30-12:30，共4小時。
地 點：大林慈濟醫院第二會議室
主辦單位：大林慈濟醫院腸胃內科換水大腸鏡學習中心
認定積分：台灣內科醫學會學分—待申請、台灣消化系醫學會學分—待申請
台灣消化系內視鏡醫學會學分—待申請

時間	Theme	Speaker	Moderator
08:30-08:55	報到		
08:55-09:00	Opening	曾國枝 醫療長 (大林慈濟醫院)	
09:00-10:00 (60min)	Device-assisted Water Exchange vs. Water Exchange Alone – RCT Focused on ADR	Felix W. Leung (Professor of Medicine in Residence, UCLA)	曾國枝 醫療長 (大林慈濟醫院)
10:00-10:15	休息		
10:15-10:35 (20min)	A Study on Colorectal Polyp Detection Combining Explainable AI and Deep Learning 結合可解釋人工智慧與深度學習的大腸鏡息肉偵測研究	林土量 副教授 (嘉義大學 資訊管理學系)	柯秉宏 主任 (大林慈濟醫院)
10:35-10:55 (20min)	The Application of AI Technology in the Detection and Classification of Colorectal Polyps AI技術應用於大腸息肉的偵測與分類	張宏義 教授 (嘉義大學 資訊管理學系)	曾志偉 部長 (大林慈濟醫院)
10:55-11:10	休息		
11:10-11:30 (20min)	Saline Exchange And Use of An Abdominal Compression Device Reduce the Need for Manual Assistance by Endoscopy Staff During Colonoscopy Insertion 換水大腸鏡與使用腹部加壓器材皆可以降低內視鏡技術師施行人工徒手輔助術式的頻率	鄭吉良 醫師 (中壢長榮醫院)	唐家沛 主任 (大林慈濟醫院)
11:30-12:30	Q & A		
12:30	課程結束		

聯絡人：鄭佳欣/王旨吟 小姐 05-2648000-3240、5501

workshop報名網址



CURRICULUM VITAE

NAME FELIX W. LEUNG, M.D.

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Sepulveda Ambulatory Care Center and Nursing Home, VAGLAHS,
16111 Plummer Street, Sepulveda, CA 91343

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felixleung@socal.rr.com

PLACE OF BIRTH Hong Kong

CITIZENSHIP U.S.A.

MARITAL STATUS Married, one daughter, two sons

ACADEMIC TITLE Professor of Medicine in Residence (Step 9), David Geffen School of Medicine at UCLA

EDUCATION Vincennes University, Vincennes, Indiana, A.S. Business Administration, 1972
Yale College, New Haven, Connecticut, B.S. Administrative Sciences, 1974
Yale Medical School, New Haven, Connecticut, Doctor of Medicine, 1978

INTERNSHIP UCLA-Wadsworth VAMC, Los Angeles, CA, July 1978 to June 1979

RESIDENCY UCLA-Wadsworth VAMC, Los Angeles, CA, July 1979 to June 1981

FELLOWSHIP UCLA-Wadsworth GI Fellowship, Los Angeles, CA, July 1981 to August 1984

LICENSURE California, G39846

NPI 1811078348

BOARD CERTIFICATION Diplomate in the National Board of Medical Examiners, 7/2/79
Diplomate in the American Board of Internal Medicine, 9/15/82
Diplomate in the Subspecialty of Gastroenterology, 11/8/83

PROFESSIONAL EXPERIENCE

2019 - present	Reviewer of endoscopic procedure consult requests (including acceptance and triage)
2016 - present	Reviewer of VAGLAHS Urgent Outpatient consults (including acceptance and triage)
2016 - present	Reviewer of VA SACC Outpatient consults (including acceptance and triage)
2016 - present	PI in 2 multisite RCT on water exchange colonoscopy
2016 - present	VAGLAHS reviewer of e-consult completed by second and third year GI trainees.
1986 - 2022	Trainer for medicine residents and GI trainees
2016 - 2019	Colonoscopy trainer for UCLA pediatric GI trainees
2016 - 2019	Consultant attending (in person patient care) VA Oxnard Outpatient GI clinic
2002 - present	Specialized in unsedated colonoscopy
2013 - present	Full-time Diagnostic and Therapeutic Endoscopist, West Los Angeles VAMC, VAGLAHS
2010 - present	Diagnostic and Therapeutic Endoscopist (part-time), Gastroenterologist, Physician, West Los Angeles VAMC, VAGLAHS
1998 - present	Consultant Gastroenterology Attending, VA Bakersfield Outpatient Clinic

1998 - present Consultant Gastroenterology Attending, VA Santa Barbara Outpatient Clinic
 1997 - present Chief of Gastrointestinal Motility, VA Sepulveda ACCNH
 1996 - present Chief of Gastroenterology and Endoscopy, VA Sepulveda ACCNH
 1995 - present Professor of Medicine in Residence, David Geffen School of Medicine at UCLA
 1990 - present Member/Investigator, Center for Ulcer Research and Education (CURE)/UCLA Digestive Disease Research Center
 1986 - present Principal Investigator, Gastrointestinal Blood Flow Research Laboratory, Sepulveda VAMC/ UCLA San Fernando Valley Program (SFVP)

PROFESSIONAL ACTIVITIES

Committee Service

2024 Member, VA Cancer Screening QI project
 2022 Member, ASGE Research Committee
 2014 - present Planning committee for establishing International WATERS [International Water Aided Techniques in Endoscopy (Education) and Research Society]
 2014 - present Planning committee for VA Improving Colonoscopy Web-based lectures
 2013 - 2017 ASGE Annual Scientific Program Committee Lower GI – Section 1

Journal Reviews (ad hoc reviewer - year marked date of first invited review)

2024 eBioMedicine (Lancet Group)
 2024 International Journal of General Medicine Dove Medical Press
 2023 Therapeutic Advances in Gastroenterology
 2023 Expert Review of Medical Devices
 2023 Risk Management and Healthcare Policy Dove Medical Press
 2023 Clinical Gastroenterology and Hepatology
 2023 Digestive and Liver Disease
 2023 European Journal of Gastroenterology & Hepatology
 2023 Chinese Medical Journal
 2023 Journal of Clinical Gastroenterology
 2023 American Journal of Gastroenterology
 2022 Frontiers in Medicine Gastroenterology
 2022 Annals of Internal Medicine
 2022 Frontiers in Medicine
 2022 iGIE
 2021 Current Medical Research & Opinion
 2021 Expert Review of Pharmacoeconomics & Outcomes Research
 2018 Expert Review of Gastroenterology & Hepatology
 2018 Metabolism
 2017 Lancet
 2013 Digestive and Liver Diseases
 2013 Video Journal & Encyclopedia of GI Endoscopy
 2013 World Journal of Gastrointestinal Endoscopy
 2012 BioMedical Central Medical Education Journal
 2012 World Journal of Anesthesiology
 2012 Case Reports in Medicine
 2012 Journal of Agricultural and Food Chemistry
 2012 Drug, Healthcare and Patient Safety
 2012 Diseases of the Colon & Rectum
 2012 European Journal of Gastroenterology and Hepatology
 2012 Gut

2011 Molecular Biology Reports
 2010 Journal of Interventional Gastroenterology
 2009 Clinical and Experimental Gastroenterology
 2009 Endoscopy
 2009 New England Journal of Medicine
 2009 Scandinavian Journal of Gastroenterology
 2009 Therapeutics and Clinical Risk Management
 2008 Annals of Internal Medicine
 2008 Journal of Clinical Gastroenterology
 2008 Journal of Diabetes and Its Complications
 2008 Nutrition and Metabolism
 2008 Drugs
 2007 Journal of Clinical Outcomes Management
 2007 Nicotine and Tobacco Research
 2007 BMJ Clinical Evidence
 2005 Clinical Gastroenterology and Hepatology
 2004 Alimentary Pharmacology and Therapeutics
 2004 Diabetes Care
 2004 Journal of the American Medical Directors Association
 2003 International Journal of Cancer
 2001 Experimental Biology and Medicine
 1998 Laboratory Investigation
 1996 Digestion
 1996 American Journal of Physiology (Circulation)
 1996 Free Radical Biology and Medicine
 1996 Journal Pharmacology Experimental Therapeutics
 1996 Alcoholism: Clinical & Experimental Research
 1996 Journal of Immunology
 1994 Pancreas
 1994 Journal of the Autonomic Nervous System
 1994 Journal of Applied Physiology
 1992 IEEE Transactions on Biomedical Engineering
 1992 Hepatology
 1991 Gastrointestinal Endoscopy
 1991 Life Sciences
 1991 Annals of the New York Academy of Sciences
 1989 American Journal of Gastroenterology
 1988 Journal of Clinical Investigation
 1987 Digestive Diseases and Sciences
 1986 American Journal of Physiology (Gastroenterology and Liver)
 1986 Journal of Gastroenterology and Hepatology
 1986 Archives of Internal Medicine
 1984 Gastroenterology

Grant Reviews

2023 Reviewer for ASGE Research Grants
 2022 Reviewer for ASGE Research Grants
 2019 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
 2018 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
 2017 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the

- Hong Kong Special Administrative Region, People's Republic of China
- 2016 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
- 2015 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
- 2014 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
- 2013 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
- 2008 Research Grant Reviewer for the Food and Health Bureau, Government Secretariat, The Government of the Hong Kong Special Administrative Region, People's Republic of China
- 2007 Reviewer, UCLA Academic Senate Faculty Research Grant Program
- 2006 Research Management Group ad Hoc Reviewer Philip Morris External Research Program
- 2005 Hong Kong (China) Research Grant Council External Referee
- 2004 Hong Kong (China) Research Grant Council External Referee
- 2003 Research Management Group ad Hoc Reviewer Philip Morris External Research Program
- 2002 Hong Kong (China) Research Grant Council External Referee
- 2001 Hong Kong (China) Research Grant Council External Referee
- 1999 Hong Kong (China) Research Grant Council External Referee
- 1998 Hong Kong (China) Research Grant Council External Referee
- 1994 University and Polytechnic Grant (Hong Kong) ad hoc reviewer
- 1994 Hong Kong Research Grant Council Specialist Referee
- 1993 Swiss National Science Foundation ad hoc reviewer
- 1990 University and Polytechnic Grant (Hong Kong) ad hoc reviewer
- 1989 NIH research grant ad hoc reviewer, OMB (AHR-S1) study section

Promotion and Appointment Reviews

- 2014 National & Kapodistrian University of Athens, Greece, expert Foreign Referee for the election/evaluation of Faculty members of the Medical School
- 2011 External Referee (Ad Hoc), Appointment, BIMA - Barcelona International Medical Academy, Barcelona, Spain
- 2010 External Referee (Ad Hoc), Promotion and Appointment, Mayo School of Medicine, Scottsdale, Arizona
- 2008 External Referee (Ad Hoc), Promotion and Appointment, UC Davis School of Medicine, Sacramento, CA
- 2006 External Referee (Ad Hoc), Promotion and Appointment, Lee Ka Shing Faculty of Medicine, University of Hong Kong, Hong Kong, China
- 2006 External Referee (Ad Hoc), Promotion and Appointment, Vanderbilt University School of Medicine, Nashville, TN
- 2005 External Referee (Ad Hoc), Promotion and Appointment, Stanford University, Palo Alto, CA

Professional Associations and Scholarly Societies

Membership

- 2024 VA Colorectal Cancer Quality Improvement Committee
- 2013 - present Endoscopy section editor, Annals of Gastroenterology
- 2003 - present Editorial Review Board, Gastrointestinal Endoscopy (Member)
- 2017 - 2020 Editorial Board Member, Translational Gastroenterology and Hepatology
- 2017 - 2021 Editorial Board Member, Gastrointestinal Endoscopy
- 2017 American College of Gastroenterology Annual Scientific Program Committee - Stomach
- 2016 American College of Gastroenterology Annual Scientific Program Committee - Stomach
- 2016 Member, ASGE Annual Scientific Program Committee: Lower GI – Section 1

2015	Member, ASGE Annual Scientific Program Committee: Lower GI – Section 1
2014	Member, ASGE Annual Scientific Program Committee: Lower GI – Section 1
2013	Member, ASGE Annual Scientific Program Committee: Lower GI – Section 1
2012	Editor Board Member, Journal of Cytoprotection and Damage Control
2012	World Journal of Experimental Medicine
2012 - 2021	Editor Board Member, Video Journal of GI Endoscopy
2010	Member, Honorary Editorial Board of Gastrointestinal Cancer: Targets and Therapy
2010 - 2013	Member, International Advisory Board, Annals of Gastroenterology (www.annalsgastro.gr) the official Journal of the Hellenic Society of Gastroenterology
2010 - 2013	Member, Editorial Board, World Journal of Gastrointestinal Pharmacology and Therapeutics
2010 - 2013	Member, Editorial Board, World Journal of Gastrointestinal Endoscopy
2010 - 2013	Member, Editorial Board, World Journal of Clinical Oncology
2008 - 2016	Member, VA Field Advisory Committee (Gastroenterology)
2011 - 2015	Senior Associate Editor of Journal of Interventional Gastroenterology
2010	Associate Editor of Journal of Interventional Gastroenterology
2009	Chairperson, VA CCTA Multi-site Clinical Trial #0003 Planning Committee for “RCT - air vs. water for colonoscopy in sedated veterans”
2008	Fellow, American College of Gastroenterology (Direct election)
2008 - 2011	Member, Editorial Board Committee, Gastrointestinal Endoscopy
2005	Chairperson, Abstract Review Committee, GI Sensory Mechanisms Section, AGA
2004	Chairperson, VA Cooperative Study #559 Planning Committee (RCT - air vs. water for colonoscopy in unsedated veterans)
2004	Member, Abstract Review Committee, Sensory Motility Section, AGA
1995	Member, Abstract Review Committee, Splanchnic Circulation Section, AGA
1994	Elected Member, Nominating Committee, Splanchnic Blood Flow and Intestinal Disorders
1992	Member, New York Academy of Science
1992	Member, American Physiological Society
1992	Member, American Gastroenterological Association (AGA)
1992	Member, American Society for Gastrointestinal Endoscopy
1991	Member, American Association for the Advancement of Science
1991	Member, American Federation of Clinical Research
1991	International Journal of Experimental and Clinical Gastroenterology (Member of Board of Reviewers)

Chair Scientific Sessions

2015	Co-Chair, ASGE Topic Forum on Novel Methods for Increasing Colonoscopic Adenoma Detection, Annual Scientific Meeting, Washington DC, USA, May 17, 2014.
2014	Co-Chair, ASGE Topic Forum on Novel Methods for Polyp Detection, Annual Scientific Meeting, Chicago, USA, May 5, 2014.
2005	Co-Chair, Drug Receptors of the Brain-Gut-Axis, Basic Science, Gastrointestinal Motility Section, AGA Annual Scientific Meeting, Chicago, USA, May 19, 2005.
1994	Chair, Cigarette Smoke and the Gastrointestinal Tract, International Meeting on Experimental Ulcer Disease, Hong Kong, November 1994.

HONORS AND SPECIAL AWARDS

2024	Top Reviewer Award, Gastrointestinal Endoscopy. April 2024.
2024	Member, ASGE Research Committee
2023	Invited speaker – Water exchange colonoscopy. BC Colon Screening Program. Nov 8, 2023.
2023	Member, ASGE Research Committee
2022	Member, ASGE Research Committee
2023	Visiting Professor lecture - "Overview of WE Colonoscopy" Buddhist Hospital, Chaiyi, Taiwan Nov, 2022.

- 2023 Outstanding Reviewer Award, Gastrointestinal Endoscopy. May 2023.
- 2022 Outstanding Reviewer Award, Gastrointestinal Endoscopy. May 2022.
- 2022 "Foreign Distinguished Teacher" Guangdong Science and Technology Department, China
- 2022 Member, ASGE Research Committee
- 2022 Visiting Professor lecture - Water Exchange Workshop. "Overview of WE Colonoscopy" Buddhist Hospital, Chaiyi, Taiwan Nov 12, 2022.
- 2022 ASGE First Year Course Colonoscopy lecture, Aug 6, 2023, Chicago, IL.
- 2022 Invited article Insights into Water Exchange Colonoscopy Gastroenterology & Hepatology, May 2022.
- 2021 Tzu Chi Foundation Visiting Professor Lecture. "Update of water exchange colonoscopy" Chaiyi, Taiwan Oct 9-10, 2021.
- 2021 Outstanding Reviewer Award, Gastrointestinal Endoscopy. May 2021.
- 2020 Tzu Chi Foundation Visiting Professor Lecture. "Prevention of colorectal cancer – habits, screening, adenoma detection rate and artificial intelligence" Chaiyi, Taiwan Oct 18, 2020.
- 2020 Outstanding Reviewer Award, Gastrointestinal Endoscopy. May 2020.
- 2019 American College of Gastroenterology SCOPY Award (Honorary Mention) Colorectal cancer (CRC) screening, adenoma detection rate (ADR) and interval cancer (IC)
- 2019 Tzu Chi Foundation Visiting Professor Lecture. "Colorectal cancer (CRC) screening, adenoma detection rate (ADR) and interval cancer (IC)" Chaiyi, Taiwan Nov 8, 2019.
- 2018 Tzu Chi Foundation Visiting Professor Lecture. "Water-aided colonoscopy and adenoma detection - where are we now and where are we going?" Chaiyi, Taiwan Oct 6, 2018.
- 2018 Keynote speaker " Water-aided colonoscopy and adenoma detection - where are we now and where are we going?" Heilongjiang Provincial Annual Congress of Digestive Diseases, 1st Affiliated Hospital of Harbin Medical University, Heilongjiang , China, December 2, 2017.
- 2018 DDW Invited Speaker. 2018 Session: Distinguishing Yourself in Practice: Simple Tricks for Your Practice. Presentation Title: UNSEATED COLONOSCOPY: STARTING A PROGRAM AND REACHING A NEWAUDIENCE. Session Date: June 5, 2018.
- 2018 Outstanding Reviewer Award, Gastrointestinal Endoscopy. May 2018.

GIE new Reviewer Mentorship

Yu-Hsi Hsieh, MD, Won GIE best reviewer award 2020, 2021

Paul Shao, MD, Won GIE best reviewer award 2021

Anusha Thomas 2022

Joseph Zhang 2023

RESEARCH GRANTS AND FELLOWSHIPS RECEIVED

Active Research Grant

UCLA Faculty Research Grant	\$5,000 (PI – FW Leung)	7/2024 – 6/2025
Title: Does the addition of artificial intelligence (AI) improve the adenoma detection rate during water exchange colonoscopy?		Role: PI

Ministry of Science and Technology, Taiwan	(PI – Francisco Tang)	2020 - 2024
Polyp and Adenoma Detection Rates by Computer-Aided Video Analysis and Blinded Endoscopic Assessment, respectively, in Withdrawal Phase of Air Insufflation or Water Exchange Colonoscopy from a Randomized Controlled Trial		Role: Co-I/Mentor

UCLA Faculty Research Grant	\$7,000 (PI – FW Leung)	7/2023 – 6/2024
Title: A pragmatic approach to minimize disparity among black patients for colonoscopy		Role: PI

Completed Research Grants

Am Society for GI Endoscopy (ASGE)	\$70,000 (PI – FW Leung)	Felix W. Leung, M.D.
Does the addition of a cap improve the adenoma detection rate during water exchange colonoscopy?		2016 - 2023
		Role: PI
VA Clinical Merit	\$600,000 (PI – FW Leung)	2016 –2023
Title: Prospective RCT of water Exchange (WE) vs. WE plus cap-assisted colonoscopy		Role: PI
UCLA Faculty Research Grant	\$5,000 (PI – FW Leung)	7/2022 – 6/2023
Title: A pragmatic approach to minimize disparity among black patients for colonoscopy		Role: PI
Canadian Digestive Research Foundation	\$40,000 (PI – Adrian Bak)	2013-2022
Potential of the water method of colonoscopy as a universal screening test (Kelowna, Canada)		Role: Co-I/Mentor

LECTURES

DDW Invited Lecture. 2018 Session: Distinguishing Yourself in Practice: Simple Tricks for Your Practice. Presentation
 Title: UNSEATED COLONOSCOPY: STARTING A PROGRAM AND REACHING A NEW AUDIENCE.
 Washington DC. June 5, 2018.

Keynote speaker "Update on water exchange (WE) colonoscopy" Heilongjiang Provincial Annual Congress of Digestive Diseases, 1st Affiliated Hospital of Harbin Medical University, Heilongjiang, China, September 14, 2018.

Underwater colonoscopy – new frontiers (sponsored by International WATERS – **W**ater **A**ssisted **T**echniques **E**ndoscopic Research Society). Challenge, tricks, and tips on learning WE (water exchange) colonoscopy, at the United European Gastroenterology Week meeting, Vienna, Austria. Oct 23, 2018.

Research Seminar - Water method for colonoscopy. Taipei Medical University, Taipei, Taiwan, Dec 19, 2018

Research Seminar - Water method for colonoscopy. Evergreen Hospital, Taipei, Taiwan, Dec 20, 2018

Tzu Chi Foundation video lecture - Water aided colonoscopy - where are we now and where are we going. Buddhist Hospital, Chiayi, Taiwan (video broadcast to Buddhist Hospitals Taipei, Taichung and Hualien), Dec 21, 2018.

Medical Grand Round - Colorectal Cancer (CRC) Screening, Adenoma Detection Rate (ADR) and Interval Cancer. Sepulveda Ambulatory Care Center, VAGLAHS, North Hills, CA. Feb 21, 2019.

Medical Grand Round - Colorectal Cancer (CRC) Screening, Adenoma Detection Rate (ADR) and Interval Cancer. West LA VAMC, VAGLAHS, North Hills, CA. March 27, 2019.

Research Symposium Lecture - State of the art lecture - Update of water exchange colonoscopy. 10th Colorectal Cancer Symposium. Sacramento VAMC, Sacramento, CA. 05042019.

Research Symposium Lecture - Sedation for colonoscopy? 10th Colorectal Cancer Symposium. Sacramento VAMC, Sacramento, CA. 05042019.

Clinical Lecture (House staff) – Gastroesophageal reflux. Sepulveda VA Ambulatory Care Center, North Hills, VAGLAHS, Los Angeles, CA. Aug 5, 2019.

Tzu Chi Foundation video lecture - Water Colorectal cancer (CRC) screening, adenoma detection rate (ADR) and interval cancer (IC). Buddhist Hospital, Chiayi, Taiwan (video broadcast to Buddhist Hospitals Taipei, Taichung and Hualien), Nov 8, 2019.

Research Seminar - Water method for colonoscopy. Buddhist Hospital, Chiayi, Taiwan, Nov 9, 2019.

Medical Grand Round - Colorectal Cancer (CRC) Screening, Adenoma Detection Rate (ADR) and Interval Cancer. Sepulveda VAMC, VAGLAHS, North Hills, CA. March 5, 2020.

Clinical Training Lecture - Water exchange - a novel adult technique in search of a niche in pediatric colonoscopy. UCLA Pediatric GI Training Program. Los Angeles, CA. April 16, 2020. (Video)

Research Seminar - Water Exchange (WE) Workshop Lecture. Buddhist Hospital, Chiayi, Taiwan, Nov 18, 2020. (Video)

Tzu Chi Foundation video lecture - Update of Water-aided Colonoscopy. Buddhist Hospital, Chiayi, Taiwan (video broadcast to Buddhist Hospitals Taipei, Taichung and Hualien), Oct 8, 2021. (Video)

Research Seminar - Update of Water-aided Colonoscopy. Buddhist Hospital, Chiayi, Taiwan, Oct 9, 2021. (Video)

Medical Grand Round - Update of water exchange colonoscopy. West LA VAMC, VAGLAHS, West Los Angeles, CA. March 2, 2022. (Video)

Professional Development Conference. Sacramento VAMC. Felix Leung “Water exchange increases serrated polyp detection rate (SPDR) – icing on the cake in quality colonoscopy” Sacramento VAMC, Sacramento, CA. 04072022. (Video)

Research Seminar - Water Exchange (WE) Workshop Lecture. Water-aided Diagnostic and Therapeutic Colonoscopy Evolution in Clinical Practice and Research Buddhist Hospital, Chiayi, Taiwan, Nov 12, 2022.

ASGE first year fellow summer course invited faculty - Colonoscopy. Chicago, IL. Aug 5 - 6, 2022.

Medical Grand Round - Colorectal Cancer Screening. West LA VAMC, VAGLAHS, West Los Angeles, CA. May 3, 2023.

ASGE first year fellow summer course invited faculty - Colonoscopy. Chicago, IL. Aug 5 - 6, 2022.

Medical Grand Round - Colorectal Cancer Screening. West LA VAMC, VAGLAHS, West Los Angeles, CA. May 3, 2023.

British Columbia Colon Screening Program Lecture. Video lecture. Water-Aided Colonoscopy. Nov 8, 2023

Research Symposium Lecture - An update of water exchange colonoscopy. Buddhist Hospital, Chiayi, Taiwan, Nov 12, 2023.

COURSES

CME Course Coordinator - Hands-on ERCP Practice Course for GI Physicians. Sepulveda Ambulatory Care Center and Nursing Home, Greater Los Angeles Healthcare System, Sepulveda, CA. 081505.

CME Course Faculty - Hands-on ERCP Practice Course for GI Physicians. Sacramento VAMC, Sacramento, CA. 081806.

CME Course Co-director. Colorectal Cancer Symposium. Sacramento VAMC, Sacramento, CA. 03202010.

CME Course Co-director. Second Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03062011.

CME Course Co-director. Third Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03172012.

Course Co-Director. Research Training Session - Water exchange method for colonoscopy. Department of Gastroenterology, NordICC Study Center, Sørlandet Hospital, Kristiansand, Norway. April 19-20, 2012.

CME Course Co-director. Fourth Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03162013.

Symposium Co-director. Journal of Interventional Gastroenterology Symposium on Water Aided Methods for Colonoscopy. Shanghai, China. September 23, 2013.

CME Course Co-director. Fifthth Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03012014.

CME Course Co-director. Sixth Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03282015.

CME Course Co-director. Seventh Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 04022016.

CME Course Co-director. Eighth Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03182017.

CME Course Co-director. 9th Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 03032018.

CME Course Co-director. 10th Colorectal Cancer Screening Symposium. Sacramento VAMC, Mather, CA. 05042019.

RESEARCH PAPERS - PEER REVIEWED (PUBLISHED)

1. Bayupurnama P, Ratnasari N, Indrarti F, Triwikatmani C, Maduseno S, Nurdjanah S, Leung FW. Endoscope-connected water pump with high flow rates improves the unsedated colonoscopy performance by water immersion method. *Clin Exp Gastroenterol*. 2018 Jan 12;11:13-18. doi: 10.2147/CEG.S152669. eCollection 2018.
2. Kang XY, Zhao L, Zhu ZY, Leung FW, Wang LM, Wang XP, Luo H, Zhang LH, Dong T, Li PY, Chen ZQ, Gui R, Jia H, Guo XY, Pan YL, Guo XG, Fan DM. Same-day single-dose of 2 liter polyethylene glycol is not inferior to the standard bowel preparation regimen in low-risk patients: a randomized, controlled trial. *American Journal of Gastroenterology*. 2018 Apr;113(4):601-610. doi: 10.1038/ajg.2018.25. Epub 2018 Mar 13.
3. Leung FW, Koo M, Cadoni S, Falt P, Hsieh YH, Amato A, Erriu M, Fojtik P, Gallittu P, Hu CT, Leung JW, Liggi M, Paggi S, Radaelli F, Rondonotti E, Smajstrla V, Tseng CW, Urban O. Water exchange produces significantly higher adenoma detection rate than water immersion - pooled data from two multi-site randomized controlled trials. *Journal of Clinical Gastroenterology*. 2019;53(3):204-209. doi: 10.1097/MCG.0000000000001012.
4. Jia H, Koo M, PhD, Hsieh YH, Tseng CW, Hu CT, Zhang LH, Dong T, Pan YL, Leung FW. Factors associated with adenoma detection in propofol-sedated patients. *Journal of Clinical Gastroenterology*. 2019;53(7):523-529. doi: 10.1097/MCG.0000000000001080.
5. Cadoni S, Hassan C, Frazzoni L, Ishaq S, Leung FW. Impact of water exchange colonoscopy on endoscopy room

- efficiency: a systematic review and meta-analysis. *Gastrointest Endosc.* 2019 Jan;89(1):159-167.e13. doi: 10.1016/j.gie.2018.07.020. Epub 2018 Jul 23.
6. Yen AW, Amato A, Cadoni S, Friedland S, Hsieh YH, Leung JW, Liggi M, Sul J, Leung FW. Underwater polypectomy without submucosal injection for colorectal lesions ≤ 20 mm in size-a multicenter retrospective observational study. *Surg Endosc.* 2018 Oct 17. doi: 10.1007/s00464-018-6517-1. [Epub ahead of print]
 7. Hsieh YH, Koo M, Tseng CW, Yang HW, Leung FW. Reduction of multitasking distractions underlies the higher adenoma detection rate of water exchange compared to air insufflation – blinded analysis of withdrawal phase videos. *United European Gastroenterology Journal.* 2019;7(2):230–238. First Published December 5, 2018 <https://doi.org/10.1177/2050640618817105>
 8. Cohen J, Desilets DJ, Hwang JH, Kabir Baig KKK, Leung FW, Maranki JL, Okolo PI, III, Swannstrom LL, Chak A. GIE Editorial Board top 10 topics: advances in GI endoscopy in 2018. *Gastrointest Endosc.* 2019;90(1):35-43.
 9. Leung JW, Yen AW, Jia H, Opada C, Melnik A, Atkins J, Feller C, Wilson MD, Leung FW. A prospective RCT comparing combined chromoendoscopy with water exchange (CWE) vs. water exchange (WE) vs. air insufflation (AI) in adenoma detection in screening colonoscopy. *United European Gastroenterol J.* 2019 May;7(4):477-487. doi: 10.1177/2050640619832196. Epub 2019 Feb 19.
 10. Cheng CL, Kuo YL, Hsieh YH, Tang JH, Leung FW. Water exchange colonoscopy decreased adenoma miss rates compared with literature data and local data with CO₂ insufflation: an observational study. *BMC Gastroenterol.* 2019 Aug 14;19(1):143.
 11. Hsieh YH, Tseng CW, Koo M, Leung FW. Feasibility of sedation on demand in Taiwan using water exchange and air insufflation: a randomized controlled trial. *Journal Gastroenterology and Hepatology.* 2020;35(2):256-262.
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RESEARCH PAPERS - PEER REVIEWED (SUBMITTED/IN PREPARATION)

- Leung FW, Cheung R, Friedland S, Jacob N, Leung JW, Pan, Pan JY, Quan SY, Sul J, Yen AW, Jamgotchian N, Chen Y, Dixit V, Shaikh A, Elashoff D, Saha A, Wilhalme H. Real time maximum insertion pain in unsedated colonoscopy - water exchange plus cap (WECAC) vs. water exchange (WE) - a prospective multi-site, multi-investigator, single blinded randomized controlled trial (RCT) in Veterans. (Submitted).
- Leung FW, Cadoni S, Chen L, Chen Y, Cheng CL, Cheung R, Dixit V, Elashoff D, Friedland S, Gallittu P, Hsieh YH, Cheng CH, Jacob N, Jamgotchian N, Jia H, Kuo YL, Lee BP, Leung JW, Mura D, Pan JY, Pan YL, Quan SY, Saha A, Shaikh A, Sul J, Tseng CW, Tsui YN, Wilhalme H, Wong R, Yen AW, Zhang LH. Addition of a Daisycuff™ or Endocuff Vision but not a straight cap improves the adenoma detection rate during water exchange colonoscopy: an international multi-center randomized controlled trial. (In Preparation).
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ARTICLES - PEER REVIEWED (PUBLISHED)

1. Shao PP, Grewal JK, Custer AM, Leung FW. Novel use of esophageal overtube and water flushes as a safety indicator and facilitator for the push technique in esophageal food impaction. *Discussion of Clinical Cases* 2020, Vol. 7, No. 1.

LETTERS TO THE EDITORS (PUBLISHED)

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2. Leung FW, Leung JW. "To WE or not to WE" that is the question. *Gut*. 2020, <http://dx.doi.org/10.1136/gutjnl-2020-323397>.
3. Zeng R, Sha WH, Leung FW, Hao Chen H. Letter to the Editor: Proton pump inhibitors and Biliary Tract Cancer Risk: Causality or Reverse Causality? *Hepatology*. 2021;74(6):3555-3556.

REVIEWS – PEER REVIEWED (PUBLISHED)

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3. Hsieh YH, Leung FW. The impact of water-aided methods on pain reduction and adenoma detection rate during colonoscopy. *Advances Digestive Medicine* 2018;5(1-2):7-15.
4. Hsieh YH, Leung FW. An overview of deep learning algorithms and water exchange in colonoscopy in improving adenoma detection. *Expert Rev Gastroenterol Hepatol*. 2019 Dec;13(12):1153-1160.
5. Tseng CW, Leung FW, Hsieh YH. Impact of new techniques on adenoma detection rate based on meta-analysis data. *Tzu Chi Med J*. 2019 Apr-Jun; 32(2):131-136.
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7. Hwang JH, Jamidar P, Kyanam Kabir Baig KR, Leung FW, Lightdale J, Maranki JL, Okolo PI 3rd, Swanstrom LL, Chak A. GIE Editorial Board top 10 topics: advances in GI endoscopy in 2019. *Gastrointestinal Endoscopy*. 2020; 92(2):241-251
8. Cadoni S, Ishaq S, Hassan C, Bhandari P, Neumann H, Kuwai T, Uedo N, Parra-Blanco A, Mulder CJJ, Binmoeller KF, Leung FW. Covid-19 pandemic impact on colonoscopy service and suggestions for managing recovery. *Endoscopy International Open* 2020; 08: E985–E989
9. Tang CP, Shao PP, Hsieh YH, Leung FW. A review of water exchange and artificial intelligence in improving adenoma detection. *Tzu Chi Med J* 2021; 33(2): 108–114
10. Hsieh YH, Tang CP, Tseng CW, Lin TL, Leung FW. Computer-aided detection false positives in colonoscopy. *Diagnostics (Basel)*. 2021 Jun; 11(6): 1113.
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COMMENTARY (PUBLISHED)

1. Leung FW. Ask the Expert: Water-assisted colonoscopy and distal cap attachment. *ASGE Connection*. 2018. June: 1-6.
2. Leung FW. Insights into Water Exchange Colonoscopy. *Gastroenterology and Hepatology*. November 2022 - Volume 18, Issue 11

EDITORIALS (PUBLISHED)

1. Leung FW. In split-dose prepared patients, water exchange could significantly improve overall and segmental bowel preparation scores and increase adenoma detection rate. Editorial for An analysis of segmental Boston Bowel Preparation Scale (BBPS) and adenoma detection rate (ADR): is the level of cleanliness associated with higher ADR? *Annals of Gastroenterology*. 2018;31(2):127-128.
2. Leung FW, Jia H. Water exchange versus split-dose bowel preparation and the ADR: Is WE there yet? *Digestive Diseases and Sciences*. *Digestive Diseases and Sciences*. 2018;63(5):1097–1099.
3. Leung FW. Split-dose bowel preparation versus water exchange and adenoma detection rate: have we arrived there yet? *Annals of Gastroenterology*. 2018;31:253-255.
4. Leung FW. Assessment of trainees' performance in colonoscopy. *Gastrointestinal Endoscopy*. 2018;87(1):270-271.
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BOOK REVIEW

WHAT IS NEW IN GASTROENTEROLOGY AND HEPATOLOGY. Editors: Ioan Sporea, Alina Popescu. Bentham Science Publishers. Review date: June 12, 2012.

Device-assisted Water Exchange vs. Water Exchange Alone – RCT Focused on ADR

This study investigates the efficacy of device-assisted water exchange (DATW) versus water exchange alone (DAWE) in improving adenoma detection rate (ADR). A higher ADR correlates with a reduced incidence of interval colon cancer. Water exchange (WE) has improved ADR and bowel cleanliness. Adding a device-assisted colonoscopy (DAC) to WE has further increased ADR. This study hypothesizes that combining DAC and WE throughout the examination DATW enhances ADR and salvage cleaning. Retrospective analysis of prospectively collected data was performed on patients who received split-dose bowel prep. DATW showed significantly higher overall and proximal ADR, especially in screening patients, and a higher adenoma per colonoscopy (APC) compared to DAWE. There were no significant differences in distal colon ADR and adenoma per positive colonoscopy (APPC). Limitations include a non-randomized, small sample size analysis. DATW demonstrates superior effectiveness in ADR and quality compared to DAWE, despite some methodological limitations.

(1)基本資料

中文姓名	林 土 量	英文姓名	Tu-Liang Lin
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(2)主要學歷 請填學士級以上之學歷或其他最高學歷均可，若仍在學者，請在學位欄填「肄業」。

畢／肄業學校	國別	主修學門系所	學位	起訖年月(西元年/月)
美國愛荷華州立大學	美國	資訊科學	博士	自 2005/2 至 2011/6
國立中山大學資訊管理碩士	台灣	資訊管理	碩士	自 1994/9 至 1996/6

(3)現職及與專長相關之經歷 指與研究相關之專任職務，請依任職之時間先後順序由最近者往前追溯。

服務機關	服務部門／系所	職稱	起訖年月(西元年/月)
現職： 國立嘉義大學	電子計算機中心	主任	自 2024/2 至今
國立嘉義大學	資訊管理學系	副教授	自 2020/8 至今
經歷： 國立嘉義大學	資訊管理學系	助理教授	自 2012/2 至 2020/7
中國醫藥大學附設醫院	醫學研究部	博士後研究員	自 2011/10 至 2011/12
台灣宇太新科技	軟體開發處	技術顧問	自 2003/1 至 2003/6
台灣宇太新科技	軟體開發處	產品開發經理	自 2000/2 至 2002/12
台灣宇太新科技	軟體開發處	軟體工程師	自 1998/12 至 2000/1

(4)專長 請自行填寫與研究方向有關之專長學門。

1.人工智慧	2.醫學影像處理	3.資訊安全	4.無線網路
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1. Chia-Pei Tang, Yu-Hsi Hsieh, Tu-Liang Lin, Felix W. Leung .S0326 The Strengths of Artificial Intelligence and Water Exchange Complement the Weaknesses of Each Other to Yield Significantly Higher Additional Polyp Detection and Lower False Alarm Rates. *The American Journal of Gastroenterology*. 115 S158, October 2020.
2. Tu-Liang Lin, Hong-Yi Chang, Sheng-Lin Li. A Location Privacy Attack Based on the Location Sharing Mechanism with Erroneous Distance in Geosocial Networks. *Sensors (Basel)*. 2020 Feb 9;20(3):918.
3. Tu-Liang Lin, Hong-Yi Chang, Kai-Hong Chen. The pest and disease identification in the growth of sweet peppers using faster R-CNN and mask R-CNN. *Journal of Internet Technology*. Vol 21, No 2 Mar 2020.
4. Tu-Liang Lin, Hong-Yi Chang, Yu-Hsin Wang. A Novel Hybrid Search and Remove Strategy for Power Balance Wireless Charger Deployment in Wireless Rechargeable Sensor Networks. *Energies*. **2020**, 13(10), 2661.
5. Jinn-Yi Yeh, Tu-Liang Lin, Siwa Chan. Predicting Breast Density of Digital Breast Tomosynthesis from 2D Mammograms. *IETE Journal of Research*. Vol 69, Apr. 2023 - Issue 6.
6. Yu-Hsi Hsieh, Chia-Pei Tang, Chih-Wei Tseng, Tu-Liang Lin, Felix W Leung. Computer-Aided Detection False Positives in Colonoscopy. *Diagnostics (Basel)*. 2021 Jun 18;11(6):1113.
7. Chia-Pei Tang, Kai-Hong Chen, Tu-Liang Lin. Computer-Aided Colon Polyp Detection on High Resolution Colonoscopy Using Transfer Learning Techniques. *Sensors (Basel)*. 2021 Aug 6;21(16):5315.
8. Chia-Pei Tang, Chen-Hung Hsieh, Tu-Liang Lin. Computer-Aided Image Enhanced Endoscopy Automated System to Boost Polyp and Adenoma Detection Accuracy. *Diagnostics (Basel)*. 2022 Apr 12;12(4):968.
9. Tu-Liang Lin, Hong-Yi Chang, Yu-Hsin Wang. A Novel Unmanned Aerial Vehicle Charging Scheme for Wireless Rechargeable Sensor Networks in an Urban Bus System. *Electronics* 2022, 11(9), 1464.
10. Tu-Liang Lin, Hong-Yi Chang, Yuan-Yao Chiang, Shu-Cheng Lin, Tsung-Yen Yang, Chun-Jun Zhuang, Wha-Lee Tseng, Bo-Hao Zhang. Ransomware Detection by Distinguishing API Call Sequences through LSTM and BERT Models. *The Computer Journal*, Volume 67, Issue 2, February 2024, Pages 632–64.

講者:林土量

題目:結合可解釋人工智慧與深度學習的大腸鏡息肉偵測研究

大腸鏡檢查是及早發現並診斷結腸息肉的關鍵手段，對預防結腸直腸癌具有重大意義。然而，息肉在形狀和大小上的多樣性，使得精確偵測和分類成為一項複雜的挑戰。我們利用可解釋人工智慧（Explainable AI，XAI）與深度學習模型相結合，致力於提升大腸鏡息肉偵測及症狀分析的準確性和可靠性。

我們採用了 Grad-CAM 等模型視覺化技術，直觀地展示模型在偵測和分類息肉時的關注區域，從而增強模型的可解釋性。為進一步提高偵測的精準度，研究使用了 YOLO 系列演算法和 U2-Net 分割網路等先進的物件偵測方法。實驗結果顯示，這些方法在識別息肉方面具有優異表現，並且通過 XAI 技術揭示了模型決策過程中的關鍵特徵分布。

此外，通過 Grad-CAM 等解釋性深度學習技術，進一步強化了模型對大腸鏡圖像中息肉特徵的捕捉能力，有助於開發更精確且可解釋的自動化息肉偵測工具，為臨床診斷提供有效輔助，從而提升診斷效率和準確性。



張宏義博士於 2010 年 10 月 26 畢業於國立清華大學資訊工程學系，2011 年 8 月 1 日至 國立嘉義大學資訊管理學系任新進助理教授乙職，2014 年 8 月升等為副教授，2017 年 8 月 升等為教授，2021 年 8 月接任資管系主任，主要的研究領域包括了無線/有線網路通訊技術、人工智慧、雲端運算、即時多媒體影音串流、網路安全，近年著重於人工智慧及無線/有線網路通訊技術的研究，相關研究成果已經發表於國際著名期刊 IEEE Transactions on Vehicular Technology、The Computer Journal、IEEE Communications Letters、Information Sciences、Multimedia Tools and Applications 等，近年也已發表諸多成果於重要之國際會議 (IEEE ICC、IEEE ICCA、IEEE ICCE、IEEE WF-IoT 等)。2013-2021 年有 30 篇知名國際論文期刊發表 (IEEE Transactions on Vehicular Technology*1、Information Sciences*2、The Computer Journal*5、Multimedia Tools and Applications*5、Energies*3、Journal of supercomputing*1、Wireless Communications and Mobile Computing*1、International Journal of Ad Hoc and Ubiquitous Computing*1、International Journal of Distributed Sensor Networks*2、Journal of Internet Technology*4、IJGHPC*3、Security and Communication Networks*1、Journal of Computers*1) 及 31 篇論文接受在國際會議上發表。2022 年有 3 篇知名國際論文期刊接受發表 (The Computer Journal*1、Diagnostics*1、Electronics*1) 及 2 篇論文接受在重要會議上發表 (TANET*3)。張博士也經常受邀為 Microsoft TechED、TechNet 等大型技術研討會講師，負責新技術之發表，此外也為資深電腦圖書作家，書籍著作 4 本，最新著作為 2019 年「Python 程式設計初學指引」，滄海書局出版、技術文章網路超過 25 篇，於 2007 年獲選微軟最有價值專家 (MVP)。並於 2010 年被台灣 NGN IPv6 移轉技術分項計畫推選列於國內 IPv6 專家名單中，積極參與及推動 IPv6 相關活動推展。

※ 國內外之成就與榮譽

- 獲選擔任 108-113 中華民國資訊管理學會南區會員代表及理事。
- 獲選擔任
- 榮獲科技部 105-112 年度補助大專校院特殊優秀人才獎勵。
- 榮獲本校 105-109 及 112 年「產學合作績優教師獎」，管理學院第一名。
- 製作磨課師課程「魔法程式設計創意課程」參加 2017 大中華區 MOOCr Award 優秀慕課選拔賽，榮獲課程工具與應用類-銀獎。
- 榮獲國立嘉義大學 105 學年度教學績優肯定獎及 108 學年度教學績優特優獎。
- 榮獲 104 年度科技部計劃「基於腦波分析及生醫偵測技術之銀髮族主動求助及關懷系統 研製」獲選為優良成果，刊登於科技部優良成果專刊-工程科技通訊，No. 154，2016 年 10 月。
- 受邀擔任 2017~2022 年頂尖國際會議 IEEE International Conference on Communications (IEEE ICC) 之 TPC (Technical Program Committee)。
- 受邀擔任 International Journal of Technology and Human Interaction (IJTHI) 的 Guest Editor。
- 受邀擔任 2022 IEEE ICCE_TW、2015 ACENS、2013 ICEAS、2012 WCC、2012 BoT 研討會之議程主持人(Session Chair) 及 ICOIN 2020 Workshop Co-Chair。
- 2010 年獲選入國內 IPv6 專家顧問名單
- 2007 年獲選微軟最有價值專家(MVP)。

大腸癌得病率為所有癌症之冠，且死亡率高達 9.2%。如果能及早發現並處理，可有效預防息肉惡化成癌症的風險。但即便是擁有許多經驗的醫師，仍會遺漏息肉，據研究顯示高達 26%。為降低息肉漏診率，並輔助經驗不足的醫師執行大腸鏡檢查，因此利用深度學習開發系統來協助醫生辨識及分類息肉是目前重要的研究。而醫療影像因具有隱私問題，資料不易蒐集，即便有公開資料集可供學術使用，但是仍須人工個別標記息肉位置與類別，不只耗時且標記人員容易因疲勞導致判斷錯誤，進而影響模型訓練出來的表現。為解決上述困境，本研究將提出一個息肉輔助標記系統，標示完成後僅需檢查各圖片的息肉類別去進行確認及調整，可大幅減少人力與時間成本。本研究將透過比較不同物件偵測演算法 Yolo (You Only Look Once) 及重置網路架構，打造專屬於息肉標記的輔助工具。

此外，近期有越來越多學者投入大腸息肉分類的研究，但礙於資料集不夠多的困境，且影像解析度所能提供的特徵細節不足，所以大部分的研究將息肉類別數簡化為一至二類，使其結果表現良好。事實上，應輔助醫師判讀各類難以分辨或混淆的息肉類型，也才能將電腦輔助偵測與診斷系統的效益最大化。因此，本研究將提出一套基於超解析度影像技術 SRGAN (Super-Resolution Generative Adversarial Network)、SRResNet (Super-Resolution Residual Network) 及 SR3 (Image Super-Resolution via Iterative Refinement) 的大腸息肉偵測及分類系統來放大並強化息肉血管紋路等特徵的方式，增強系統在息肉類別上的判斷，以提升息肉分類的表現。同時將 Mosaic 資料擴增的圖片數調整至 9 張，有助於模型更全面地學習各種特徵與場景。以及直方圖均衡化的處理，進一步提高影像的對比度與亮度，使得系統更有效地分類不同類型的息肉，結合上述使模型表現最佳化。

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Saline Exchange And Use of An Abdominal Compression Device Reduce The Need For Manual Assistance By Endoscopy Staff During Colonoscopy Insertion

換水大腸鏡與使用腹部加壓器材皆可以降低內視鏡技術師施行人工徒手輔助術式的頻率

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Abstract

Colonoscopy screening is highly effective in preventing colorectal cancer. However, colonoscopy can be challenging in some cases, due to redundancy or looping of the colon. Looping occurs in up to 90% of patients undergoing colonoscopy, and this may prevent successful cecal intubation, prolong insertion time, and cause complications. Manual assistance in the form of abdominal pressure and/or position change is an ancillary maneuver to overcome looping and is used in 40%-70% of patients undergoing colonoscopy. Each task requires substantial physical exertion that poses ergonomic challenges to endoscopy staff and increases the risk of endoscopy-related injury. Water or saline exchange colonoscopy has been shown to reduce the need for manual assistance during insertion in previous studies. ColoWrap (LLC, Durham, NC,

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USA) and Maxbelt (Nippon Sigmax Co., Tokyo, Japan) are external abdominal compression devices which may overcome looping and have potential in reducing ancillary manual maneuvers. However, available data pertaining to these devices are limited. In a retrospective observational study, we found both saline exchange and the use of any abdominal compression device significantly reduced the frequency of manual assistance during insertion compared with CO₂-insufflated colonoscopy. The potential benefits of reducing the ergonomic risks among the endoscopy staff deserve further study.