THE UNIVERSITY OF MELBOURNE

MMS Department of Surgery

Annual Research Showcase

Building Surgical Services and Research through Artificial Intelligence and Digital Health

Program
Tuesday 12th November 2024

The Department of Surgery Research Committee presents the 2024 DoS Annual Research Showcase. We welcome a stellar line-up of academics and clinicians to present their research.
The 2024 DoS Annual Research Showcase will:

- Showcase research within the department
- Highlight the diverse research journeys
- Engage in a Q&A with audience members
- Promote collaborative opportunities

In this 2024 event, we invite you to delve into the forefront of surgical research, where technology intertwines seamlessly with healthcare. Our showcase brings together pioneering minds, presenting groundbreaking advancements that leverage AI and digital health to revolutionize surgical practice and research. From predictive analytics guiding patient care to augmented reality assisting in surgical procedures, join us as we explore the transformative potential of these technologies in shaping the future of surgery.

Program

Event:	Department of Surgery Annual Research Showcase		
Date:	12 November 2024	**Time:**	1:00pm –6:30pm
Venue:	Woodward Conference Centre, 10th Floor Melbourne Law Buliding 106 Parkville VIC		
Zoom Link: **Password:** **Meeting ID:**	https://unimelb.zoom.us/j/84489311891?pwd=pQzbZY2m9L87HpHWF4bgsPVDw3AaX3.1 052902 84489311891		
Registration:	Click Here		
Enquiries:	michelle.marcola@unimelb.edu.au		

1:00	**Registration**	
1:25 – 1:30	**Introduction and Acknowledgement of Country** **Dr Serena Duchi** - St Vincent's Hospital/ The University of Melbourne	
1:25 – 1:30	**Welcome** **Prof Peter Choong AO** - Sir Hugh Devine Professor of Surgery/Head, University of Melbourne Department of Surgery/Associate Dean, Innovation & Enterprise, FMDHS/The University of Melbourne	
SESSION 1	**DoS Presentations**	**Chair: Dr Carla Abbott**
1:30 – 1:50	**TRANSLATIONAL RESEARCH GRANT 2023 (15'+5' Q&A)**	
Keynote Speaker	**Dr Jennifer Fan Gaskin -** *Ophthalmology/CERA/RVEEH/Univiesty of Melbourne* A new non-invasive approach for the treatment of proliferative vitreoretinopathy	
1.50 – 2.20	**RHD Rapid Fire 5x5' Presentations**	**Chairs: Dr Serena Duchi & A/Prof Sina Babazadeh**
	Samuel Widodo - *Royal Melbourne Hospital*	

	Amy Xie - *St Vincents Hospital* Dulani Sooriyaaratchi - *St Vincents Hospital* Jasmin Elkin - *St Vincents Hospital* Arian Ansardamavandi - *Austin Health*
2.20 – 2.30	**Ms Lisa Lombardi -** *Ophthalmology/CERA/University of Melbourne* "Advanced AI tools in vision processing for the bionic eye"
2.30 – 2.40	**Dr Jocelyn Lippey -** *St Vincent's Hospital/University of Melbourne* "Breast cancer AI (BRAIx) project"
2.40 – 2.50	**Prof Justin Yeung -** *Western Health/University of Melbourne* "Rectal cancer response prediction after chemotherapy with the Artificial Intelligence"
2.50 – 3:00	**Q&A**
3.00 – 3.30	**BREAK AFTERNOON TEA**
SESSION 2	**DoS Presentations** — **Chairs: Dr James Dimou & Zoe Pasvanis**
3.30 – 4.00	**RHD Rapid Fire 5x5' Presentations** — **Chair: Dr Carla Abbott**
	Mahmoud Haddara - *Centre for Eye Research Australia* Alice Chen - *Centre for Eye Research Australia* Qi Rui Soh - *Austin Health* Zixin "Cherry" Hong - *Centre for Eye Research Australia* Jesse Gardner-Russell - *Centre for Eye Research Australia*
4:00 – 4:10	**Prof Richard de Steiger -** *Epworth Hospital/University of Melbourne* "Next-gen clinical registries: common data models, AI & cloud computing"
4:10 – 4:20	**Dr Sudanthi Wijewickrema -** *Otolaryngology/University of Melbourne* "Automatic Processing of Intra-Operative Data from Cochlear Implant Surgery"
4.20 – 4:30	**Dr Matthew Read -** *St Vincent's Hospital/University of Melbourne* "Cancer response prediction after chemotherapy with the Artificial Intelligence"
4.30 – 4:40	**Q&A**
4.40 – 5:00 **Keynote Speaker**	**Prof Eduard Hovy** - *University of Melbourne* — **Chair: Dr Carla Abbott** Executive Director, Melbourne Connect Research and Enterprise "Uses of Generative AI in Surgery"
SESSION 3	**Panel Discussion – Challenges and opportunities of AI in healthcare** **Chair: Dr Russell Hodgson**
5:00 – 5:30	**Prof Peter van Wijngaarden** - *University of Melbourne* *Executive Director, The Florey Institute of Neuroscience and Mental Health* *Australian Alliance for Artificial Intelligence in Healthcare Workforce Program Committee* **Mr Anthony Gust** - *Northern Health* *Executive Director Digital Health* **A/Prof Lisa Zhuoting Zhu -** *Ophthalmology/CERA/University of Melbourne* *Lead Researcher,Ophthalmic Epidemiology* **Mrs Priyanka Nair-Turkich -** *University of Melbourne* *Research Data & Health Informatics Specialist* **Prof Eduard Hovy -** *University of Melbourne* *Executive Director*, Melbourne Connect Research and Enterprise

5:25 – 5:30	**Closing Remarks & Rapid Fire Award**	**A/Prof Marcos Perini**
5:30	**Refreshments**	
6:30	**Close**	

Speakers

Dr Jennifer Fan Gaskin

MBChB, MD, FRANZCO

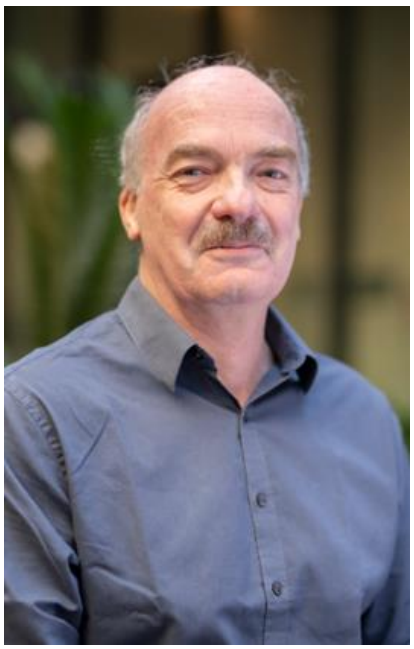
Dr Jennifer Fan Gaskin is a Glaucoma Specialist at the Royal Victorian Eye and Ear Hospital, and the Principal Investigator of the Ocular Fibrosis Research Unit at the Centre for Eye Research Australia (an institution ranked fourth globally in ophthalmology research). In 2021 she was named one of Science and Technology Australia's Superstars of STEM.

Her doctoral thesis "Keratoconus: Novel Investigations of the Diseased Cornea" granted by the University of Auckland was awarded the prestigious Clinical Research Training Fellowship by the Health Research Council of New Zealand. She completed RANZCO Ophthalmology training in New Zealand and underwent two glaucoma fellowships in Auckland and Melbourne, respectively.

Her research focuses on novel treatment strategies for fibrotic eye diseases including post-operative fibrosis in glaucoma filtration surgery, proliferative vitreoretinopathy, and macular fibrosis in age-related macular degeneration. Dr Fan Gaskin serves on many executive and scientific boards, including the Australian and New Zealand Glaucoma Society, Glaucoma Australia, and Australian Vision Research, for which she is the Secretarial Director.

Professor Eduard Hovy

PhD



Eduard Hovy is the Executive Director of Melbourne Connect (a research and tech transfer centre at the University of Melbourne), a professor at the University of Melbourne's School of Computing and Information Systems, and a research professor at the Language Technologies Institute in the School of Computer Science at Carnegie Mellon University. In 2020–21 he served as Program Manager in DARPA's Information Innovation Office (I2O), where he managed programs in Natural Language Technology and Data Analytics. Dr. Hovy completed a Ph.D. in Computer Science (Artificial Intelligence) at Yale University in 1987 and was awarded honorary doctorates from the National Distance Education University (UNED) in Madrid in 2013 and the University of Antwerp in 2015. He is one of the initial 17 Fellows of the Association for Computational Linguistics (ACL) and is also a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI).

Dr. Hovy's research focuses on computational semantics of language and addresses various areas in Natural Language Processing and Data Analytics, including in-depth machine reading of text, information extraction, automated text summarization, question answering, the semi-automated construction of large lexicons and ontologies, and machine translation. In early 2024 his Google h-index was 106, with over 60,000 citations. Dr. Hovy is the author or co-editor of eight books and around 400 technical articles and is a popular invited speaker. He regularly co-taught Ph.D.-level courses and has served on Advisory and Review Boards for both research institutes and funding organizations in Germany, Italy, Netherlands, Ireland, Singapore, and the USA.

Professor Richard de Steiger

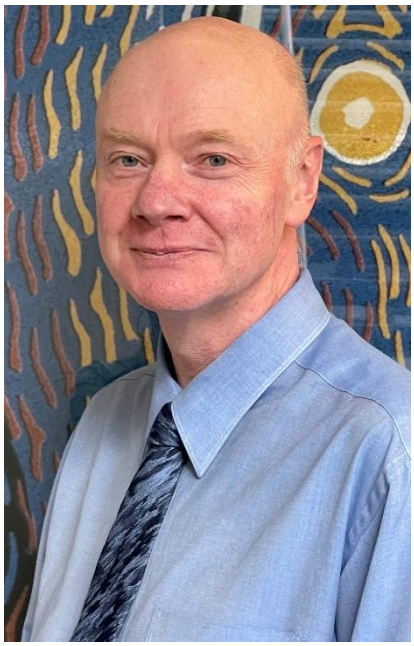
MBBS, PhD, Dip Biomech, FRACS, F.A. Orth.A

Professor Richard de Steiger is the Epworth, Victor Smorgon Chair of Surgery, The University of Melbourne, and for 17 years was the Deputy Director of the Australian Orthopaedic Association, National Joint Replacement Registry. . He completed his fellowship training in orthopaedic surgery in Melbourne and studied for several years at the Nuffield Orthopaedic Centre in Oxford, and was an AO fellow in Bern, Switzerland. He was awarded the prestigious ABC Travelling Fellowship in 1998 and obtained his PhD in the School of Public Health, Adelaide University in 2018.

He has previously been Director of Orthopaedics at Royal Melbourne Hospital and was the inaugural Chair of the Musculoskeletal Institute at Epworth Healthcare and was instrumental in setting up both undergraduate and postgraduate training in the private sector.

Prof de Steiger's current research interests include outcomes of joint replacement surgery, particularly periprosthetic joint infection, data linkage, computer navigation and robotic surgery and mechanisms involved in the cause of knee osteoarthritis. Prof de Steiger has been influential in disseminating data from Joint Registries to inform surgeons, other health care professionals, governments, orthopaedic companies, and the general community. This has had a marked beneficial influence on the outcomes of joint replacement and has resulted in large cost savings to Government. He has published over 180 peer reviewed articles and several book chapters with recent articles in the New England Journal of Medicine and Journal of the American Medical Association. He has given over 300 International and National peer-reviewed presentations with 78 as an invited plenary speaker. His papers have over 5800 citations, his H-Index is 39, and he has received over $20 Million in grant funding. He has been a member of innumerable committees over many years and has been President of the International Society of Arthroplasty Registries, the Girdlestone Society and is an active member of the International Hip Society.
He is happily married to Mandy for 35 years with two adult boys and in his spare time still plays in a rock band.

Mr Anthony Gust



Mr Gust trained and worked in science prior to developing a career in health management specialising in modelling, service development and management. He has 8 years experience in science in statistical and teaching roles and over 20 years' experience in hospital and government roles. In terms of qualifications he initially trained in pharmacology and then moved into statistics.

He has held management roles with the Victorian Department of Health and Human Services, Monash Health and as an Executive at Peninsula Health and now Northern Health. The teams have always included the Business Intelligence function but also have varied from information technology, revenue, quality, innovation, coding to electronic medical records.

Mr Gust is an experienced data analyst, learning many statistical techniques as a scientist and applying them to his future work places. His analysis skills include extensive experience with large and complex datasets, building demand and supply models and daily statistical analysis from forecasting to building logistic models. Mr Gust has also been a consultant in his own business and for KPMG. This has included analysis to build new hospitals, financial analysis to clinical service plans.

Dr Jocelyn Lippey

B.Med, FRACS

Jocelyn Lippey is a breast surgeon working at St. Vincent's and BreastScreen.

She is in the final year of her PhD addressing communication and education around risk stratified breast screening for consumers for which she is current RACS Gloria and Herbert Keys scholarship recipient as well as being a previous recipient of an NBCF practitioners grant. She is a CI on the BRAIx project which is assessing the use of artificial intelligence to improve breast cancer screening, is a member of BreastCancer Trials Scientific Advisory Committee as well as being on the board of BreastScreen Victoria.

She is also a proud co-creator of the breast unit database at St. Vincents' which collects integrated patient-reported outcome measures for all cancer patients.

Ms Lisa Lombardi

BOptom (Therapeutic endorsed), PostGradDipAdvClinOptom Melb

Lisa Lombardi is an Optometrist and Senior clinical research coordinator with the Centre for Eye Research Australia and Honorary researcher at the Royal Victorian Eye and Ear Hospital. She completed her Bachelor of Optometry degree in 2007, from the University of Melbourne, graduating with therapeutic endorsement. She completed a Post Graduate Certificate in Advanced Clinical Optometry in 2009. She is currently working with the Bionic Eye Unit exploring vision processing methods in patients with end-stage retinitis pigmentosa implanted with a suprachoroidal retinal prosthesis.

Priyanka Nair-Turkich

Priyanka is a research data specialist at Melbourne Data Analytics Platform and a PhD candidate at the school of computing and information systems at the University of Melbourne. Priyanka has worked on various projects in health and infectious diseases data governance, and bioinformatics. Her research interest is understanding how data and decision support tools can help develop equitable health policies for vulnerable communities.

Dr Matthew Read

MBBS,FRACS,PhD

Dr Matthew Read is a general and upper gastrointestinal surgeon. After obtaining his general surgical fellowship in 2016 through the Royal Australasian College of Surgeons, Matthew was accepted by the Australian and New Zealand Gastro Oesophageal Surgery Association for subspecialty training in the field of upper gastrointestinal surgery. Following this, Matthew completed a combined clinical and research fellowship in surgical oncology and robotic surgery at the University Medical Centre in Utrecht, the Netherlands. Upon returning to Australia, Matthew has taken up a combined clinical and academic position through both the University of Melbourne and St Vincent's Hospital. He is the current supervisor of two PhD students that are focusing on the role of artificial intelligence in surgery.

Matthew also has a background in basic and translational research, having completed a PhD through the University of Melbourne and the Peter MacCallum Cancer Centre, which was focused on the development of preclinical models to better understand oesophageal cancer and its precursor, Barrett's oesophagus. This work has led to numerous publications, awards and international collaborations. Matthew was recipient of the senior lecturer fellowship from the Royal Australasian College of Surgeons in 2020 and 2021 and serves as the younger fellow representative on the Academic Surgery Committee. Matthew also holds key positions in numerous societies including OESO, ISDE and GESA. In these roles he serves on scientific, education and training committees.

More recently, Matthew undertook a clinical innovation fellowship through both Melbourne and Swinburne Universities which has led to the creation of a software start-up that focuses on optimising efficiency in the operating theatre and improving patient outcomes.

Dr Sudanthi Wijewickrema

BEng (Hons), PhD

Sudanthi is a Senior Research Fellow at the Department of Surgery (Otolaryngology). She obtained her PhD from Monash University in 2008 in Computer Vision and Image Processing.

Sudanthi worked in industry Research and Development for the first 5 years of her post-doctoral career. Here, her work was in the fields of Machine Learning and Image Processing in the domains of Automated Fruit Grading and Environmental Systems.

Since she joined the University of Melbourne in 2012, Sudanthi's research has been focused on the application of Machine Learning, Image Processing, and Simulation Technologies in Medical/Surgical domains.

Professor Peter Van Wijngaarden

MBBS,PhD,FRANZCO

Peter van Wijngaarden is a Principal Investigator at the Centre for Eye Research Australia (CERA) and Professor of Ophthalmology at the University of Melbourne Department of Surgery.

He is a Deputy Director of CERA, an ophthalmologist, and CEO of Enlighten Imaging, a medical technology start-up company. Peter completed his PhD in the field of retinal vascular biology at Flinders University prior to pursuing his ophthalmology training in Victoria. In 2011, he was awarded an NHMRC Overseas Based Clinical Research Fellowship to pursue research on regeneration of the central nervous system in multiple sclerosis, at the University of Cambridge, UK. Peter's research is devoted to novel imaging technologies to detect early markers of eye and central nervous system diseases, with a focus on Alzheimer's disease. His team has developed a novel retinal imaging camera and suite of artificial intelligence algorithms to detect new disease biomarkers which they are seeking to commercialise.

Professor Justin Yeung

BMBS DM PG Dip Med FRCSEd (Gen Surg) FRACS

Professor Justin Yeung is the Head of the Department of Surgery and holds the Chair of Surgery, Western Precinct, University of Melbourne. Professor Yeung is also a consultant colorectal surgeon at Western Health.

Justin graduated from Nottingham University in the U.K. and went on to complete his general surgical and colorectal specialist training in Nottingham. He then underwent a pelvic floor fellowship in Sheffield, in the United Kingdom before being awarded a HCA International Foundation Scholarship which allowed him to complete a year's specialist colorectal cancer fellowship at the Peter MacCallum Cancer Centre, Melbourne, Australia.

Justin returned to the U.K. and worked at the University Hospitals of Leicester as a consultant colorectal and pelvic floor surgeon in 2010. He was then awarded the honorary title of Senior Lecturer in 2016 with the University of Leicester.

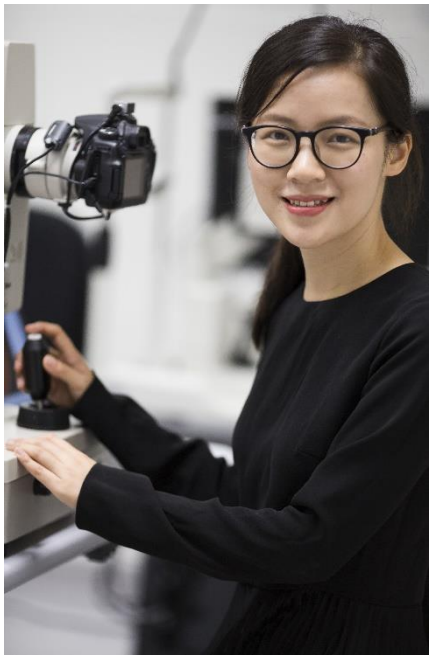
In 2017, Justin became the Head of the Department of Surgery, University of Melbourne, at Western Health, and since then has ngaarden developed research interests in Colorectal Surgery in particular in the field of improving cancer outcomes through multidisciplinary collaboration.

Professor Yeung currently leads the Department of Surgery, AI Radiomics group at Western Precinct and is also the Education Committee Chair for the Department of Surgery, University of Melbourne.

Justin is keen to support and promote education and training in the clinical environment, in particular with the development of online educational materials.

Associate Profressor Lisa Zhuoting Zhu

MD,PhD



Associate Professor Lisa Zhuoting Zhu is the Lead Researcher within Ophthalmic Epidemiology Department at the Centre for Eye Research Australia, University of Melbourne. A/Prof Zhu's work has focused on "The eye as a window to our health" and "Artificial Intelligence in Ophthalmology", which have created exceptional impact.

So far, she has developed an excellent publication record with over 140 manuscripts published in prestigious journals (such as Nature Communication, JAMA Network Open, Stroke, Lancet eClinicalMedicine and Ophthalmology), and attracted more than 1600 citations.

She has given poster and oral presentations at international and national conferences. A/Prof Zhu has been successful in securing $1.5 Million AUD funding as CIA. She has received prestigious awards, such as Australian Global Talent, Victoria Fellowship and Top cited author in Wiley.