

# Anthony Li

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EDUCATION	<b>M.D. Doctor of Medicine</b> , Duke NUS Medical School	Aug 2015 – Jun 2019
	<b>B.Eng. Electrical Engineering</b> , National University of Singapore <ul style="list-style-type: none"><li>Awarded First Class Honors (GPA: 4.5/5)</li></ul>	Aug 2009 – Jun 2013
HEALTHCARE EXPERIENCE	<b>Resident</b> , National University Health System, Regional Health System Office	Jul 2023 – Present
	<ul style="list-style-type: none"><li>Led the research on identifying biases in healthcare AI for minority populations e.g. transgender patients. Findings presented as clinical abstract and poster at annual USPATH 2023 conference.</li><li>Led the exploration of new preventive medicine screening tools leveraging Large Language Models. Findings presented as clinical abstract and poster at Singapore's AI health summit 2023.</li><li>Developed AI models for Singapore's western population (n=1.1 million) diagnosing and predicting adverse outcomes for chronic diseases (e.g. Diabetes Mellitus, Hypertension, Dyslipidemia)</li><li>Converted WPATH's SOC8 PDF copy to a mobile friendly digital web reference for clinicians and other users.</li></ul>	
	<b>Resident</b> , Ministry of Health, Health Regulation Group	Jul 2022 – Jun 2023
	<ul style="list-style-type: none"><li>Worked on the following health policies: (1) Healthcare Financing for the Healthcare Services Act and, (2) Health data sharing and protection for the Health Information Bill.</li><li>Worked with the Attorney General Chambers to draft legislation for the Health Information Bill.</li><li>Worked with the Bioethics Committee Office to draft the ethical guidelines for Big Data, Artificial Intelligence and Human Nuclear Genome Editing in biomedical research.</li></ul>	
	<b>Public Health Officer</b> , Tan Tock Seng Hospital, Clinical Epidemiology	Jan 2021 – Jun 2022
	<ul style="list-style-type: none"><li>Organised and led 5 COVID-19 vaccination awareness campaigns for 250 residents in Singapore's heartland communities.</li><li>Supported Tan Tock Seng Hospital's COVID-19 Contact Tracing (CT) and Public Health (PH) operations over the COVID-19 Delta and Omicron waves.</li><li>Operated the following key daily health surveillance systems: (1) Staff Acute Respiratory Infections. (2) Inpatient mortality. (3) Inpatient severe Dengue infections. (4) Inpatient and outpatient COVID-19 cases. (5) Emerging Infectious Disease horizon scanning.</li></ul>	
OTHER PROFESSIONAL EXPERIENCE	<b>Medical Officer</b> , Sengkang General Hospital (SKGH), General Medicine	Oct 2020 – Dec 2021
	<ul style="list-style-type: none"><li>SKGH isolation and high risk acute respiratory infection wards: Provided medical management of acute severe pneumonia and COVID-19 patients.</li></ul>	
	<b>Medical Officer</b> , Tan Tock Seng Hospital (TTSH), Infectious Disease Service	Jul 2020 – Sep 2020
	<ul style="list-style-type: none"><li>National Centre of Infectious Diseases (NCID) and Communicable Diseases Control (CDC) outbreak wards during the COVID-19 pandemic: Provided medical management for complex infectious diseases patients.</li></ul>	
	<b>Software Engineer</b> , Experimental Systems and Technology Lab	Oct 2014 – Aug 2015
	<ul style="list-style-type: none"><li>Full stack development and deployment of applications for education under the Agile programming methodology. Technologies developed currently serves approximately 10,000 users.</li></ul>	
	<b>Senior Officer</b> , A*STAR, Science and Engineering Research Council	Aug 2013 – Sep 2014
	<ul style="list-style-type: none"><li>Technology planning, grant administration and research management for Urban Systems Initiatives (S\$50 million grant), Satellite Initiatives and Infocomm Public Service Funding Research Projects.</li></ul>	

## Publications

1. Anthony Li, A. H. Aung, W. M. Kyaw, R. Khanna, W. Y. Lim, H. Ang, A. L. P. Chow Harnessing a real-time location system for contact tracing in a busy emergency department, *Journal of Hospital Infection* [Paper link]
2. Anthony Li, M. L. Ong, C. W. Oei, W. X. Lian, H. P. Phua, H. L. Htun, W. Y. Lim, M. Motani Unified Auto Clinical Scoring (Uni-ACS) with Interpretable ML models, *Proceedings of Machine Learning Research, Machine Learning for Healthcare Conference 2022* [Paper link]
3. R. Khanna, H. L. Htun, Anthony Li, H. L. Goh, W. M. Khyaw, H. Ang, B. Ang, A. Chow Staff and patient surveillance in hospitals: Good sentinels for the emergence of the SARS-CoV-2 variants, *Journal of Infection* [Paper link]
4. R. H. F. Lim, H. L. Htun, Anthony Li, H. L. Goh, W. M. Khyaw, A. H. Aung, B. Ang, A. Chow Fending off Delta – Hospital measures to reduce nosocomial transmission of COVID-19, *International Journal of Infectious Diseases* [Paper link]
5. A. Chow, H. L. Goh, W. M. Kyaw, Anthony Li, R. H. F. Lim, B. Ang, Rostered routine testing for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) infection among healthcare personnel—Is there a role in a tertiary-care hospital with enhanced infection prevention and control measures and robust sickness-surveillance systems?, *SHEA Journal: Infection Control & Hospital Epidemiology* [Paper link]
6. D. W. Lim, H. L. Htun, Y. Wang, Anthony Li, W. M. Kyaw, L. T. Lee, A. Chow, Healthcare workers as 'canaries' for acute respiratory infections and pathogens during the COVID-19 pandemic, *The Journal of Hospital Infection* [Paper link]
7. Sia S. X. Y., Anthony Li, Hierarchical Module Classification in Mixed Initiative Conversational Agent System, *27th ACM Conference on Information and Knowledge Management* [Paper link]
8. Xiong W., Anthony Li, Ong S.H., Sun Y. Automatic 3D Prostate MRI Segmentation Using Graph Cuts and Level Sets, *Pacific-Rim Conference on Multimedia (PCM) 2013* [Paper link]

## Abstracts

1. Anthony Li, S. X. Y. Sia, Regulating LLMs in healthcare AI: An analysis of whether LLMs are sensitive to transphobic content, *US Professional Association of Transgender Health Conference 2023* [Oral Presentation / Poster]
2. Anthony Li, T. Lim, J. J. Lee, E. Ng, Z. J. Ling Application of LLMs for Preventive Healthcare Intervention Recommendations, *AI Health Summit 2023* [Oral Presentation / Poster]
3. Anthony Li, W. Go, W. C. Chan, R. Chua Guidance Tool for Development and Implementation of Safe Healthcare AI, *Machine Learning for Healthcare Conference 2023* [Oral Presentation / Poster]
4. Anthony Li, Z. L. Huang, C. W. Oei, W. X. Lian, H. P. Phua, W. X. Ng, S. Y. Tay, Learning from failure: Explaining clinical ML model prediction errors, *Machine Learning for Healthcare Conference 2022* [Oral Presentation / Poster] [Paper link]
5. Anthony Li, C. W. Oei, H. P. Phua, W. X. Lian, L. H. Htet, S. H. Phua, G. P. Tan, H. Y. Xu, W. Y. Lim, J. Abisheganadan, Application of Uni-ACS to COPD for prediction of Frequent Readmissions, *Singapore Health and Biomedical Conference 2022* [Oral Presentation / Poster]
6. Anthony Li, C. W. Oei, H. P. Phua, W. X. Lian, L. H. Htet, W. Y. Lim, Application of Machine Learning to predict 1 year All Cause Mortality in Chronic Obstructive Pulmonary Disease, *Singapore Health and Biomedical Conference 2021* [Oral Presentation / Poster]
7. Anthony Li, T. M. Ng, A. Chow, Early identification of bacteremia and its predictors with high performing Artificial Intelligence models, *Singapore Health and Biomedical Conference 2021* [Abstract]

<b>RESEARCH GRANTS</b>	<b>AM ETHOS Medical Student Fellowship Grant 2017,</b>	Oct 2017
	<i>Singhealth Duke-NUS Academic Medicine Center</i> <ul style="list-style-type: none"> <li>▪ Awarded a \$10,000 grant to study application of machine learning algorithms to Acute Coronary Syndrome patient PCI and echocardiograph datasets to predict patient mortality and morbidity.</li> </ul>	
<b>AWARDS</b>	<b>Young Investigator Award in Clinical Research, Silver, SHBC 2022</b>	Oct 2022
	<ul style="list-style-type: none"> <li>▪ 2nd out of 365 submissions. Awarded to top clinical researchers under 40 years old, at Singapore's National Healthcare Group's annual healthcare and biomedical congress. Cash prize of \$600.</li> </ul>	
	<b>Young Investigator Award in Clinical Research, Merit, SHBC 2021</b>	Oct 2021
	<ul style="list-style-type: none"> <li>▪ Top 5 out of 633 submissions. Awarded to top clinical researchers under 40 years old, at Singapore's National Healthcare Group's annual healthcare and biomedical congress.</li> </ul>	
	<b>LEAP award, Singhealth Duke-NUS Academic Medicine Center</b>	Jul 2019
	<ul style="list-style-type: none"> <li>▪ Awarded to 3 out of 65 selected medical students who have gotten honours grade for their clinical research projects under the mentorship of a Singhealth Academic Clinical Program Mentor. Cash prize of \$3000.</li> </ul>	
	<b>2nd place, NUS-NUHS-MIT Healthcare Datathon 2018, NUHS, NUS and MIT</b>	Jul 2018
	<ul style="list-style-type: none"> <li>▪ 2nd out of 40 participating teams. Organised by NUHS to address current problems in healthcare with data analytics technologies. Leveraged on gradient boosted trees and neural networks to study risk of cardiovascular complications in 10,389 diabetic surgical patients.</li> </ul>	
	<b>1st place, Singhealth Hackathon 2017, Singapore General Hospital</b>	Jan 2017
	<ul style="list-style-type: none"> <li>▪ 1st out of 20 participating teams. Organised by Singapore General Hospital to gather professionals and medical students across various disciplines within Singhealth cluster for the purpose of developing new innovative ideas to improve current patient care systems. Developed CHIT, a mobile application for communication and task coordination.</li> </ul>	
	<b>A*STAR Borderless Award, Science and Engineering Research Council</b>	May 2014
	<ul style="list-style-type: none"> <li>▪ As a research grant administrator, I was recognised for outstanding cross agency policy contribution to A*STAR's urban system's initiative and Data Analytics platform.</li> </ul>	
	<b>Dean's List, National University of Singapore</b>	Jul 2013
	<ul style="list-style-type: none"> <li>▪ Awarded to top 5% of engineering students in academic excellence in NUS Faculty of Engineering.</li> </ul>	
	<b>Enabling Red Cross Youth leaders for future public and global health challenges, Red Cross South East Asian Youth Network</b>	Jul 2022 – Present
	<ul style="list-style-type: none"> <li>▪ Awarded 2500 Swiss Francs from the International Federation of Red Cross to start a public and global health humanitarian leadership training programme.</li> <li>▪ Programme objective: To equip 20-30 Red Cross youth leaders from the South East Asian region with essential skills to design, implement and evaluate disaster preparedness and response programmes, for public health emergencies.</li> </ul>	
<b>HUMANITARIAN PROJECTS</b>	<b>Project Dawn, Red Cross Youth NUS Chapter</b>	Jun 2011 – Present
	<ul style="list-style-type: none"> <li>▪ Project Dawn is an overseas community involvement programme led by the Red Cross Youth NUS Chapter. In collaboration with local non-governmental organisations and Red Cross in Cambodia, Project Dawn delivers water sanitation and health hygiene programmes in the rural areas of Cambodia.</li> <li>▪ Led a team from 2011 to 2013 for direct missions to the province of Prey Veng. In addition to support of aforementioned programmes, team also dug wells and built libraries for 120 orphans from the Cambodia genocide by the Khmer Rouge.</li> </ul>	

<b>LEADERSHIP &amp; VOLUNTEERISM</b>	<b>Student Member</b> , WPATH and USPATH	Jun 2023 – Present
	<b>Advisor</b> , Red Cross Youth Leadership Advisory Panel	Jan 2021 – Present
	<b>Teacher Advisor</b> , Red Cross Youth NUS Chapter	Jun 2014 – Present
	<b>Standard and Psychological First Aid Volunteer</b> , Singapore Red Cross Society	Jan 2010 – Present
	<b>President</b> , Duke NUS Medical Technologies Student Group	Aug 2017 – Aug 2018
	<b>Vice President</b> , Duke NUS Emergency Medicine Student Group	Aug 2017 – Aug 2018
	<b>College Representative</b> , Duke NUS Benjamin Sheares College	Aug 2017 – Jul 2019
	<b>Clinical Peer Tutor</b> , Longitudinal Integrated Clerkship	Oct 2017 – Aug 2018
	<b>Vice President</b> , Red Cross Youth NUS Chapter	Jun 2012 – Jun 2013
	<b>Head</b> , Red Cross Youth NUS Chapter Disaster Management Group	Jun 2011 – Jun 2012
	<b>Logistics Head</b> , Red Cross Youth NUS Chapter Project Rice and Project Dawn	Jun 2010 – Jun 2011
<b>CERTIFICATIONS</b>	<b>WPATH Foundations in Transgender Health Course (2 days)</b> WPATH GEI	Aug 2023
	▪ Foundations in Transgender Health is intended for healthcare professionals and is a two-day training course that focuses on the importance of an interdisciplinary care team approach and cross-specialty foundational knowledge.	
	<b>Singapore Field Epidemiology Training Programme (5 weeks)</b> NUS SSHSPH	Aug 2022
	▪ The Singapore Field Epidemiology Training Programme (S-FETP) is conducted by the Saw Swee Hock School of Public Health and the National Centre for Infectious Diseases, to train participants in field investigation practice for infectious disease epidemiology.	
	<b>Epidemiology in Public Health Practice Specialisation (20 weeks)</b> Coursera/JHU	Oct 2021
	▪ [ <a href="#">Certificate link</a> ]	
	<b>Deep Learning Specialisation (16 weeks)</b> Coursera/DeepLearning.AI	Jun 2018
	▪ [ <a href="#">Certificate link</a> ]	
	<b>Probabilistic Graphical Models Specialisation (15 weeks)</b> Coursera/Stanford University	Dec 2018
	▪ [ <a href="#">Certificate link</a> ]	
<b>PROGRAMMING</b>	<b>Languages:</b> Python, R, C, C++, Ruby, Octave/Matlab, HTML5, Javascript, CSS, SQL	
	<b>Deep Learning Frameworks:</b> PyTorch, Tensorflow, Keras	
	<b>Packages:</b> SKLearn, XGBoost, SHAP, MICE, Caret, TidyR, EpiNow2	
	<b>Tools:</b> Git, Latex, RStudio, Docker, Google Analytics, Jupyter Notebook, Visual Code, Atom	
	<b>Frameworks:</b> Rails, Elasticsearch, Logstash, Kibana, JQuery, React, Flux	