



2024 OHDSI APAC Symposium

December 4-8 • Marina Bay Sands & National
University of Singapore (NUS)

Liyong Pei

新医療リアルワールドデータ研究機構株式会社 (PRiME-R)



MARINA BAY SANDS HIBISCUS BALLROOM LEVEL 3



NUS MD1, TAHIR FOUNDATION BUILDING

EXPO

TOWARDS HEALTHCARE ARTIFICIAL INTELLIGENCE



OBSERVATIONAL HEALTH DATA SCIENCE AND INFORMATICS

DATATHON

EDGE OF TOMORROW:

DEVELOP AI MODELS FOR HEALTHCARE SOLUTIONS



WOMEN IN SCIENCE, TECH, AND AI
FORUM 2024



4 Dec 5 Dec 6 Dec

Tutorial at NUS MD1, Level 8, Learning Room 1 & 2

- 09:30 - Registration and Tea
- 10:00 - OHDSI/OMOP Introduction
- 10:20 - OMOP CDM and Vocabulary
- 11:00 - OMOP Conversion Process
- 11:30 - Energy Break
- 11:40 - ETL Exercises
- 13:00 - Lunch
- 14:30 - OHDSI Analyses
- FROM QUESTIONS TO TCO | BUILDING COHORTS | WORKING WITH RESULTS
- 15:50 - Tea Break
- 16:10 - OHDSI Analyses
- BUILDING COHORTS HANDS-ON
- 18:00 - Closing of Tutorial

<https://ohdsi.org/> → Gold mine

Exercises

- What is the standard concept ID for the ICD10 code E11.9? 1:1 mapping
 - What domain does E11.9 belong to? Source domain = OMOP domain
- What is the standard concept ID for the ICD10 code C78.0? 1:1 mapping
 - What domain does C78.0 belong to? Source domain ≠ OMOP domain
- What ICD10 codes are mapped to the concept ID 443767? n:1 mapping
- What is the standard concept ID for the ICD10 code X67.0? 1:n mapping

RELATIONSHIP	RELATES TO	CONCEPT ID	VOCABULARY
Is a	Intentional self-poisoning by and exposure to carbon monoxide and other gases and vapours	45604952	ICD10
Non-standard to Standard map (OMOP)	Carbon monoxide poisoning from motor vehicle exhaust	4320826	SNOMED
	Intentional self poisoning	4152376	SNOMED
	Intentionally harming self	4303690	SNOMED
	Self inflicted injury	439235	SNOMED

Standardizing the question makes it possible to standardize the analysis and standardize the evidence

Analytic use case	Type	Structure
Clinical characterization	Disease Natural History	Amongst patients who are diagnosed with <insert disease of interest>, what are the patient's characteristics from their medical history?
	Treatment utilization	Amongst patients who have <insert disease of interest>, which treatments were patients exposed to amongst <list of treatments for disease> and in which sequence?
	Outcome incidence	Amongst patients who are new users of <insert drug of interest> among the population with <insert indication of interest>, how many patients experienced <insert outcome of interest> within <time horizon following exposure start>?
Population-level effect estimation	Safety surveillance	Does exposure to <insert drug of interest> increase the risk of experiencing <insert an adverse event> within <time horizon following exposure start>, among the population with <insert indication of interest>?
	Comparative effectiveness	Does exposure to <insert drug of interest> have a different risk of experiencing <insert any outcome (safety or benefit)> within <time horizon following exposure start>, relative to <insert comparator treatment>, among the population with <insert indication of interest>?
Patient level prediction	Disease onset and progression	For a given patient who is diagnosed with <insert your favorite disease>, what is the probability that they will go on to have <another disease or related complication> within <time horizon from diagnosis>?
	Treatment response	For a given patient who is a new user of <insert drug of interest> for <insert indication of interest>, what is the probability that they will <insert desired effect> in <time window>?
	Treatment safety	For a given patient who is a new user of <insert drug of interest> for <insert indication of interest>, what is the probability that they will experience <insert adverse event> within <time horizon following exposure>?

4 Dec

5 Dec

6 Dec

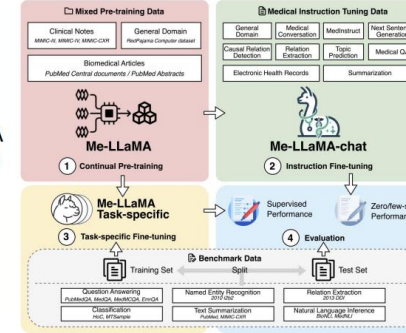
OHDSI Programme at MBS Saraca Ballroom, Level 3

- 14:30 - Opening of Day 1
- 14:40 - OHDSI for Real-World Evidence (RWE)
- 15:10 - Charting Our APAC Journey
Lessons from the Past, Visions for the Future
- 15:25 - OHDSI APAC Regional Chapter Updates
- 16:15 - Tea Break
- 16:45 - 2024 APAC ETL Project
- 17:15 - 2024 APAC ETL Project: Panel Discussion
- 17:45 - OHDSI Evidence Network
- 18:05 - Large Language Model and OHDSI: Part 1
- 18:25 - Large Language Model and OHDSI: Part 2
- 18:35 - HL7 Singapore and OHDSI Singapore Collaboration
- 18:25 - Closing of Day 1

資料 : APAC 2024 – OHDSI

Clinical IE #3 (and Beyond): Continual Pre-training LLaMA

- Continual pre-training: Trained on **129B** tokens of biomedical data, with **100,000+** GPU hours
- Instruction fine-tuning: Trained on **200K+** medical QA pairs, with **1,000+** GPU hours
- Task-specific fine-tuning: Trained and evaluated on **6** tasks, **12** datasets
- Available at 13B and 70B models



Xie Q et al. Me LLaMA: Foundation Large Language Models for Medical Applications arxiv, 2024



Professor Hua Xu

Robert T. McCluskey Professor and Vice Chair for Research and Development, Department of Biomedical Informatics and Data Science | Assistant Dean for Biomedical Informatics, Yale School of Medicine, Yale University

Building a collaborative future



- To fully unlock the potential of AI and standards, achieving meaningful progress requires;
 - Advancing standards to be AI-ready for seamless integration.
 - Ensuring ethical, transparent, and accountable AI adoption across healthcare systems.
 - Building scalable, interoperable solutions that work globally and inclusively.
- This requires collaboration between standards bodies, AI developers, healthcare providers, and regulators.



My counter question was: What happens if you take both?



Dr Adam Chee

Associate Professor, Chairperson, HL7 Singapore





7 Dec 8 Dec

7 Dec 8 Dec

- 09:00 - Registration and Breakfast
MD1 L8
- 10:00 - Opening Address
▲ MD1 L8 SEMINAR ROOM 1
- 11:00 - Group Breakout & Mentoring Session 1
MD1L8 LEARNING ROOM 1&2
- 13:00 - Lunch Break
MD1 L2 FOYER
- 14:00 - Hacking
MD1 L8 LEARNING ROOM 1&2
- 18:00 - Group Exercise
With Leo Celi
MD1 L2 FOYER
- 19:00 - Dinner Break
MD1 L2 FOYER
- 23:00 - End of Day 1

- 10:00 - Continue Hacking & Mentoring Session 2
MD1 L8 LEARNING ROOM 1&2
- 13:00 - Lunch Break
MD1 L2 FOYER
- 14:00 - Continue Hacking
- 17:00 - Final Presentation
MD1 L8 SEMINAR ROOM 1
- 19:00 - Prize Presentation & Closing Address
MD1 L8 SEMINAR ROOM 1
- 19:30 - End of Datathon

CHAMPION	\$5000 In Cash	1ST RUNNER-UP	\$3000 In Cash
2ND RUNNER-UP	\$2000 In Cash	AGENTIC AI SPECIAL AWARD	\$5000 In Cash

ELECTRONIC MEDICAL RECORD DATASETS

- ▶ MIMIC-IV Dataset
- ▶ PASAR Dataset
- ▶ INSPIRE Dataset
- ▶ eICU-CRD Dataset
- ▶ MIMIC-III Dataset

MEDICAL IMAGING DATASETS

- ▶ MIMIC-CXR Dataset
- ▶ NIH Chest X-ray Dataset
- ▶ The Diffusion-Simulated Connectivity Dataset (DISCO)
- ▶ Stanford CheXpet Dataset
- ▶ LDPolypVideo Dataset
- ▶ MICCAI 2022 MELA Challenge: Mediastinal Lesion Analysis
- ▶ EMory BrEast Imaging Dataset (EMBED)

MEDICAL MONITORING DATASETS

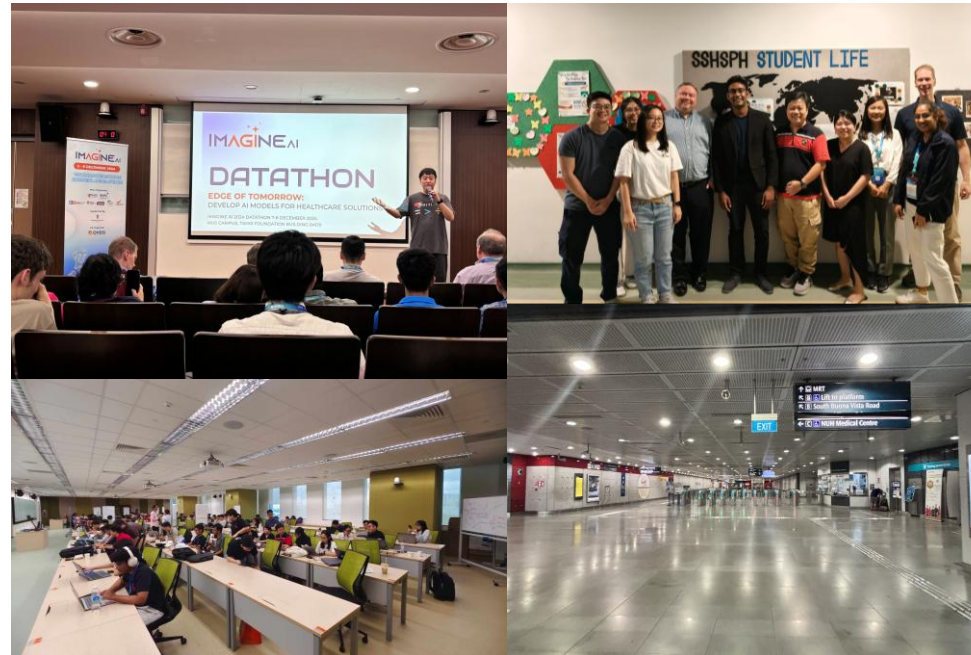
- ▶ VitalDB Dataset



7 Dec 8 Dec

AI-based Prediction for risk of Post-Surgical Complications in Elective Transplant Surgery

Team 4



- 09:00 - Registration and Breakfast
MD1 L8
- 10:00 - Opening Address
▲ MD1 L8 SEMINAR ROOM 1
- 11:00 - Group Breakout & Mentoring Session 1
MD1L8 LEARNING ROOM 1&2
- 13:00 - Lunch Break
MD1 L2 FOYER
- 14:00 - Hacking
MD1 L8 LEARNING ROOM 1&2
- 18:00 - Group Exercise
With Leo Celi
MD1 L2 FOYER
- 19:00 - Dinner Break
MD1 L2 FOYER
- 23:00 - End of Day 1

ELECTRONIC MEDICAL RECORD DATASETS

- ▶ MIMIC-IV Dataset
- ▶ PASAR Dataset
- ▶ INSPIRE Dataset
- ▶ eICU-CRD Dataset
- ▶ MIMIC-III Dataset

MEDICAL IMAGING DATASETS

- ▶ MIMIC-CXR Dataset
- ▶ NIH Chest X-ray Dataset
- ▶ The Diffusion-Simulated Connectivity Dataset (DISCO)
- ▶ Stanford CheXpet Dataset
- ▶ LDPolypVideo Dataset
- ▶ MICCAI 2022 MELA Challenge: Mediastinal Lesion Analysis
- ▶ EMory BrEast Imaging Dataset (EMBED)

MEDICAL MONITORING DATASETS

- ▶ VitalDB Dataset

CHAMPION

\$5000
In Cash

1ST RUNNER-UP

\$3000
In Cash

2ND RUNNER-UP

\$2000
In Cash

AGENTIC AI SPECIAL AWARD

\$5000
In Cash





7 Dec 8 Dec

- 10:00 - Continue Hacking & Mentoring Session 2
MD1 L8 LEARNING ROOM 1&2
- 13:00 - Lunch Break
MD1 L2 FOYER
- 14:00 - Continue Hacking
- 17:00 - Final Presentation
MD1 L8 SEMINAR ROOM 1
- 19:00 - Prize Presentation & Closing Address
MD1 L8 SEMINAR ROOM 1
- 19:30 - End of Datathon



Training: VitalDB 5 fold cross validation	External validation: PASAR	External validation: INSPIRE
Transplant surgeries with labs available pre and post op N = 256	Transplant surgeries with labs available pre and post op N = 5	Transplant surgeries with labs available pre and post op N = 668
4%	0.16%	0.51%

CHAMPION
\$5000
In Cash

1ST RUNNER-UP
\$3000
In Cash

2ND RUNNER-UP
\$2000
In Cash

AGENTIC AI SPECIAL AWARD
\$5000
In Cash

ATLAS

Concept Set #1885674
created by anonymous on 2024-12-07 12:15, modified by anonymous on 2024-12-07 12:20

[Search] INSPIRE ICD10 codes for review non-transplant

Concept Set Expression: Included Concepts: Included Source Codes: Recommend: Explore Evidence:

Enter the concept set description here

Showing 1 to 50 of 597 entries

Concept ID	Concept Code	Concept Name	Domain	Standard Concept
<input type="checkbox"/>	2872134	10D00	Gynaecology @ Pregnancy @ Extraction @ Products of Conception @ Open	Procedure Standard
<input type="checkbox"/>	2799812	OTY00	Medical and Surgical @ Urinary System @ Transplantation @ Kidney, Right @ Open	Procedure Standard
<input type="checkbox"/>	2890060	OTY00	Medical and Surgical @ Urinary System @ Transplantation @ Kidney, Left @ Open	Procedure Standard
<input type="checkbox"/>	2876980	OTY04	Medical and Surgical @ Urinary System @ Resection @ Kidney, Right @ Percutaneous Endoscopic	Procedure Standard
<input type="checkbox"/>	2898434	OTT00	Medical and Surgical @ Urinary System @ Resection @ Kidney, Right @ Open	Procedure Standard
<input type="checkbox"/>	2898435	OTT14	Medical and Surgical @ Urinary System @ Resection @ Kidney, Left @ Percutaneous Endoscopic	Procedure Standard
<input type="checkbox"/>	2827718	OTT10	Medical and Surgical @ Urinary System @ Resection @ Kidney, Left @ Open	Procedure Standard
<input type="checkbox"/>	2898440	OTT80	Medical and Surgical @ Urinary System @ Resection @ Bladder @ Open	Procedure Standard
<input type="checkbox"/>	2890345	OTQ00	Medical and Surgical @ Urinary System @ Repair @ Urethra @ Open	Procedure Standard
<input type="checkbox"/>	2898998	OTQ24	Medical and Surgical @ Urinary System @ Repair @ Ureter, Left @ Percutaneous Endoscopic	Procedure Standard
<input type="checkbox"/>	2885093	OTQ34	Medical and Surgical @ Urinary System @ Repair @ Kidney Pelvis, Right @ Percutaneous Endoscopic	Procedure Standard
<input type="checkbox"/>	2871743	OTQ30	Medical and Surgical @ Urinary System @ Repair @ Kidney Pelvis, Right @ Open	Procedure Standard
<input type="checkbox"/>	2885038	OTQ44	Medical and Surgical @ Urinary System @ Repair @ Kidney Pelvis, Right @ Percutaneous Endoscopic	Procedure Standard
<input type="checkbox"/>	2871744	OTQ40	Medical and Surgical @ Urinary System @ Repair @ Kidney Pelvis, Left @ Open	Procedure Standard
<input type="checkbox"/>	2898422	OTQ80	Medical and Surgical @ Urinary System @ Repair @ Bladder @ Open	Procedure Standard
<input type="checkbox"/>	2802064	OTM00	Medical and Surgical @ Urinary System @ Reattachment @ Urethra @ Open	Procedure Standard
<input type="checkbox"/>	2815440	OTJ84	Medical and Surgical @ Urinary System @ Inspection @ Ureter @ Percutaneous Endoscopic	Procedure Standard
<input type="checkbox"/>	2884709	OTJ87	Medical and Surgical @ Urinary System @ Inspection @ Bladder @ Via Natural or Artificial Opening	Procedure Standard
<input type="checkbox"/>	2871587	OTH80	Medical and Surgical @ Urinary System @ Insertion @ Bladder @ Open	Procedure Standard

Search 2.0 open source software provided by OHDSI

OMOP: ICD 10 PCS