
DEEP LEARNING WITH STRUCTURED DATA IN HEALTHCARE

陳俐瑾

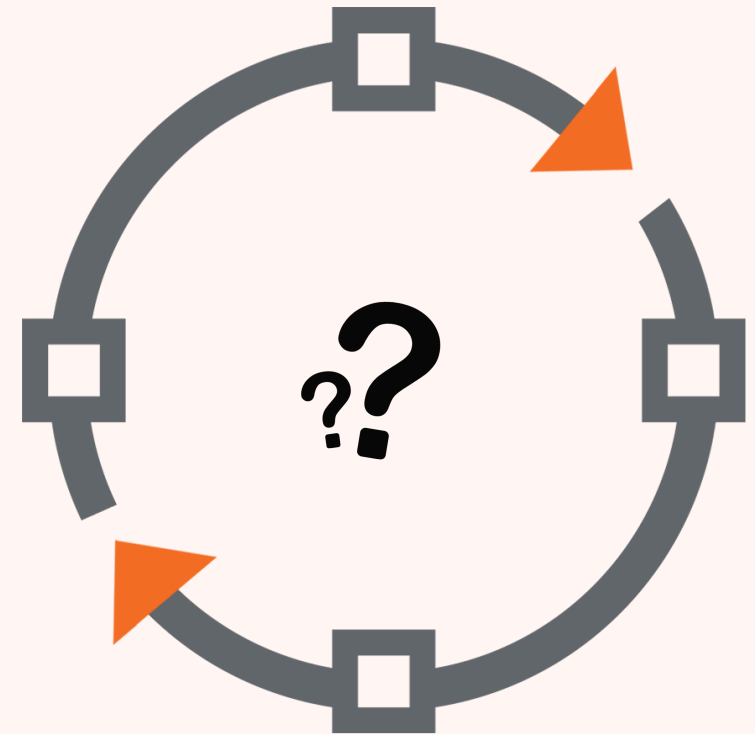
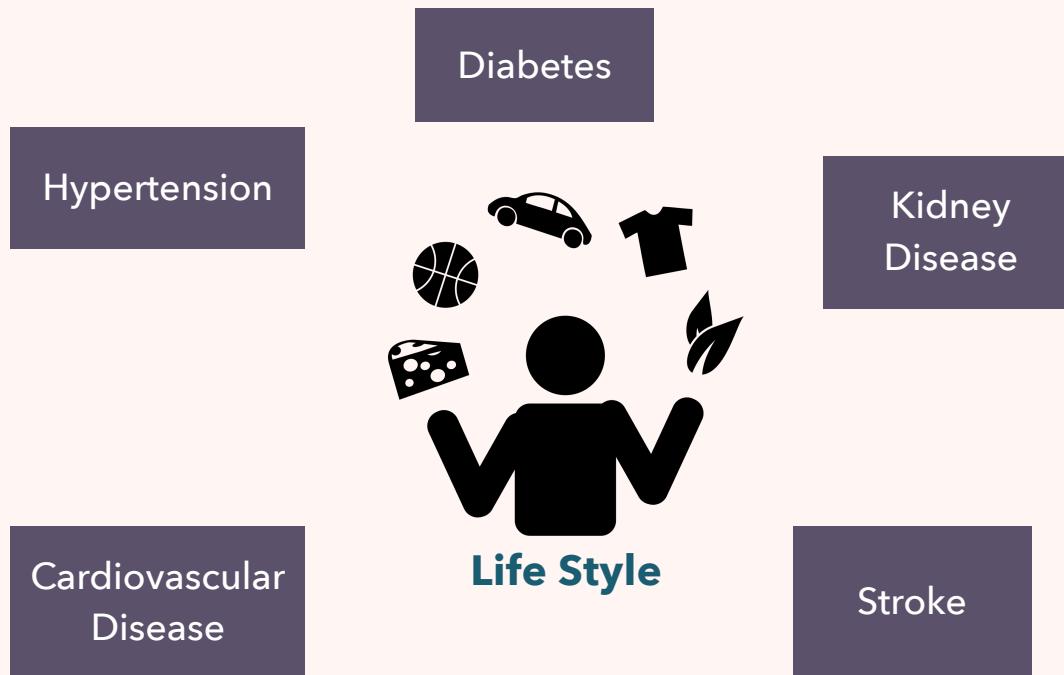
2020/07/08

AIM AND GOAL

➤ **Tool to assist medical service with overwhelming amount of information**

CURRENT TOPICS

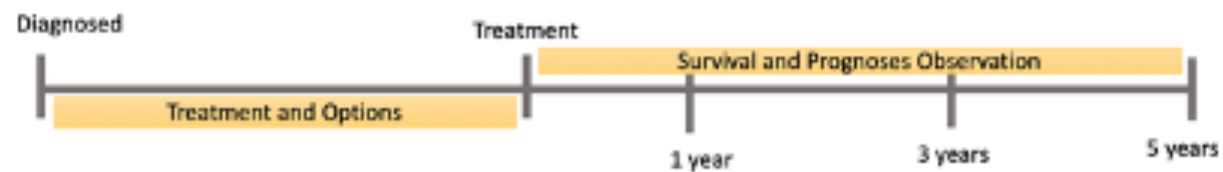
➤ Progress of Metabolic Disease



PROCESS

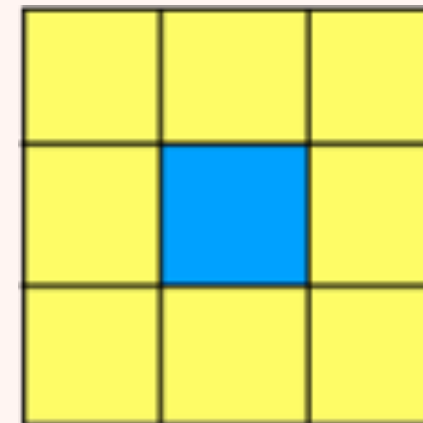
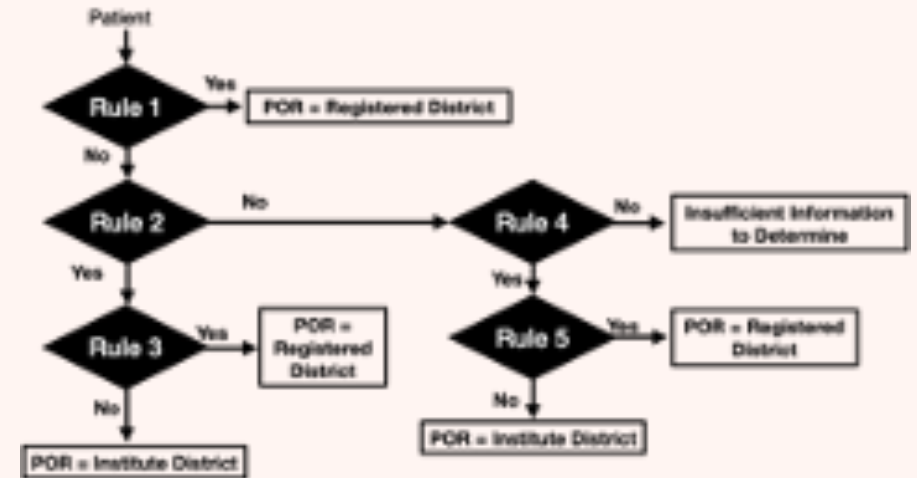
CURRENT TOPICS

- Optimal of cancer treatment
- Prognosis of treated cancer patient

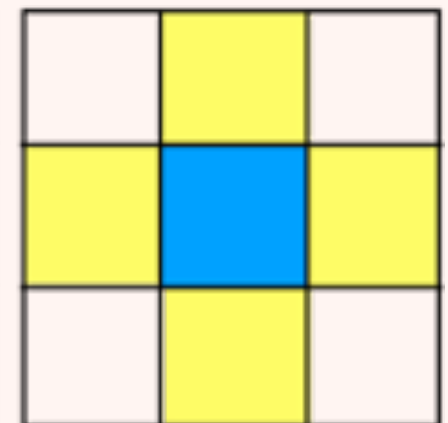


CURRENT TOPICS

- Policy planning for patient accessing care
- Regional Differences
- Disease Differences (Acute and Chronic)



Queen Contiguity



Rook Contiguity

STRUCTURED DATA AND FREE TEXT

Form

Group 1

☐ Option 1

☒ Option 2

☐ Option 3

Group 2

☒ Option A

☐ Option B

☐ Option C

Combo Box Dropdown

All Countries

Tanzania
Thailand
Trinidad and Tobago
Tunisia
Turkey
Turkmenistan
U.S. Virgin Islands
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
Uruguay
Vanuatu
Venezuela
Vietnam
Yemen
Zambia
Zimbabwe
All Countries

CASENO	SERIALNO	評估日期	性別	年齡	單位	床號	科部門	PRINTED	STATUS
16Y08257	1	2016/2/1	M	61_2_0	YI3N	3N-03	HMED	N	N
16T02849	1	2016/2/1	M	69_2_7	04C2	10-01	SURG	N	N
15T02412	2	2016/2/1	F	74_10_16	13D	19-01	MED	N	N
16T02792	1	2016/2/1	F	82_4_29	04E2	20-03	MED	N	N
16T47681	1	2016/2/1	M	73_8_0	HCCU	17-01	MED	N	N
16T47619	1	2016/2/1	F	47_11_22	HN7C	18-1B	MED	N	N
16T02851	1	2016/2/1	M	93_0_30	07D	07-01	DTRA	N	N
16T02851	3	2016/2/1	M	93_0_30	07D	07-01	DTRA	N	N
16T02855	1	2016/2/1	M	87_11_18	04E2	22-05	GERO	N	N
16T02854	1	2016/2/1	F	78_0_27	15B	02-02	MED	N	N
16T47681	1	2016/2/1	F	101_8_24	HSIC	02-01	SURG	N	N
16T02832	1	2016/2/1	F	40_11_19	15A	17-01	DERM	N	N
16T02851	2	2016/2/1	M	93_0_30	07D	07-01	DTRA	N	N
16T02856	1	2016/2/1	M	78_11_19	04E2	12-03	MED	N	N
16T02856	2	2016/2/1	M	78_11_19	04E2	12-03	M		
16T02849	8	2016/2/1	M	69_2_10	5CVI	16-01	ST		
16T02829	2	2016/2/1	M	56_1_5	07A	13-01	D		
16T02813	1	2016/2/1	M	73_10_12	07A	13-02	D		
15T02190	9	2016/2/1	M	72_9_16	04W2	11-01	O		
16T02639	3	2016/2/1	F	35_5_30	04C2	09-02	ST		
16T02639	4	2016/2/1	F	35_5_30	04C2	09-02	ST		
16T02639	7	2016/2/1	F	35_5_30	04C2	09-02	ST		
16T02639	6	2016/2/1	F	35_5_30	04C2	09-02	ST		
16Y08288	1	2016/2/1	M	75_1_19	Y06B	46-01	M		
15T02272	2	2016/2/1	F	53_5_12	14PW	10-01	O		
15T02041	1	2016/2/1	M	32_9_28	05W3	29-01	ST		
16T02711	1	2016/2/1	F	67_3_0	04A1	02-01	ST		

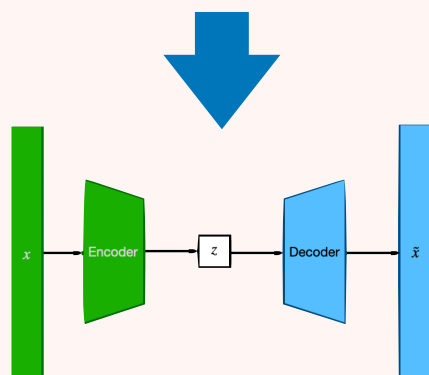
TextBoxTest

this is a test

STRUCTURED DATA IN DEEP LEARNING

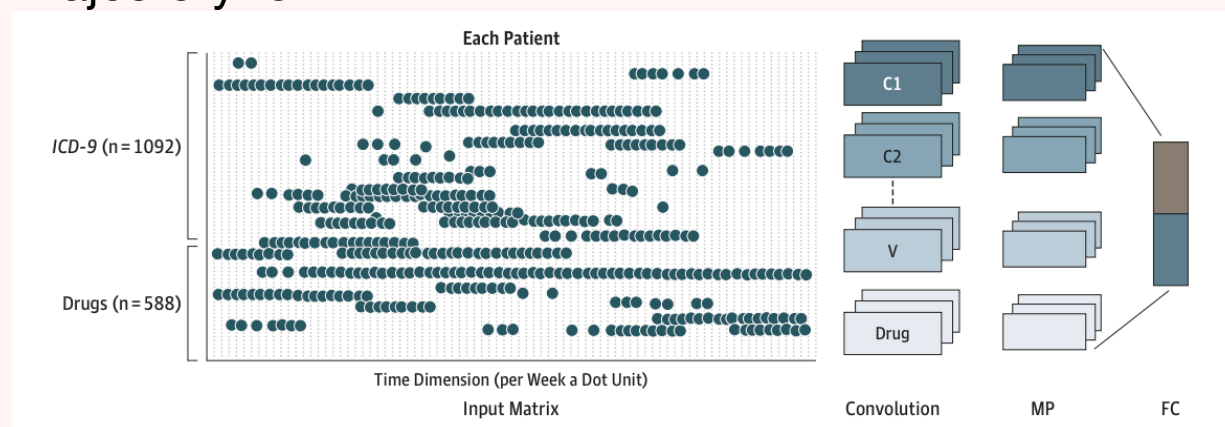
(1)

Demographic Info Laboratory Info History



Data Representation Problem

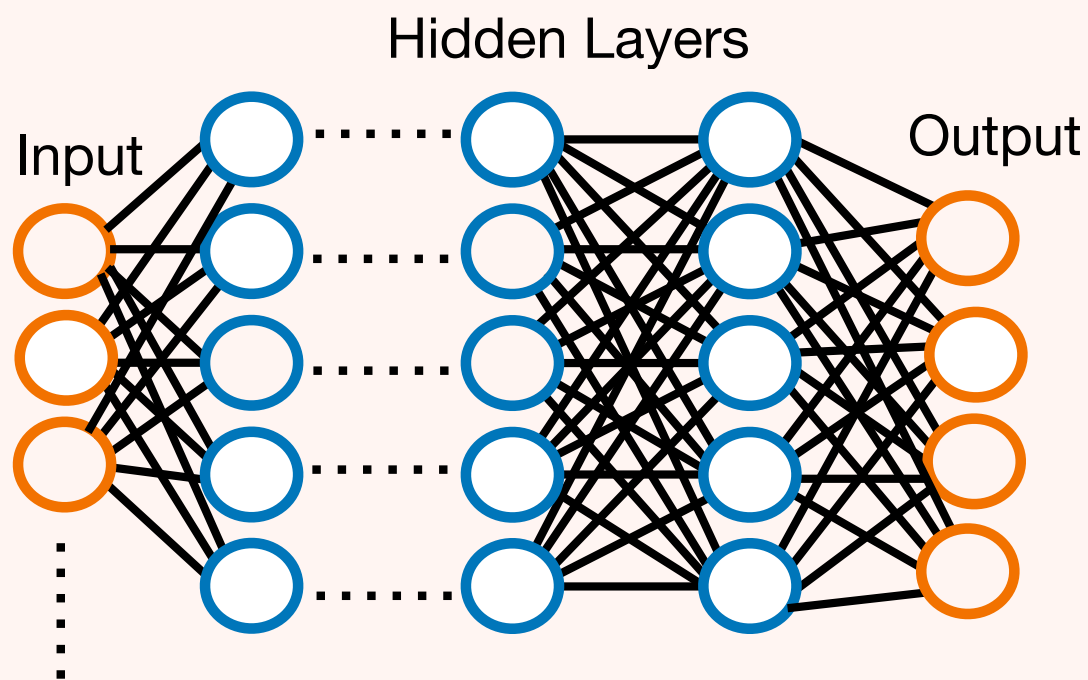
Trajectory form



Aggregation form

STRUCTURED DATA IN DEEP LEARNING

(2)

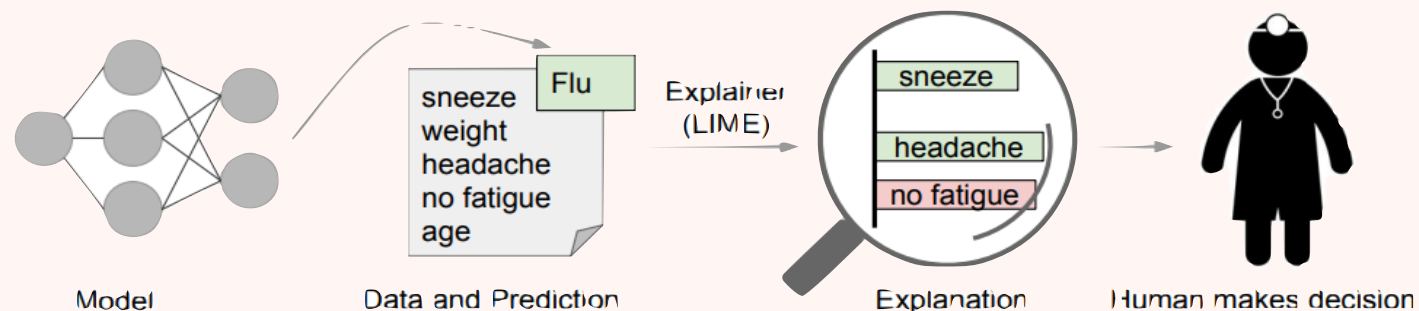


Algorithm design to achieve high performance

STRUCTURED DATA IN DEEP LEARNING

(3)

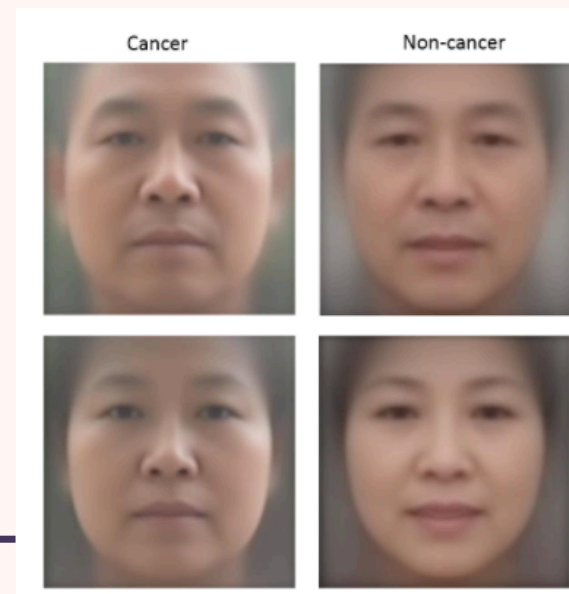
Model Interpretability



有沒有癌症，看面就哉！

IDENTIFICATION OF THE FACIAL FEATURES
OF PATIENTS WITH CANCER: A DEEP
LEARNING-BASED PILOT STUDY

➤ Liang B, Yang N, He G, Huang P, Yang Y.
J Med Internet Res 2020;22(4):e17234



THE END

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2020/07/08