

ML3CM0 林承冠 Perry Lin 2021/4/7

Outline

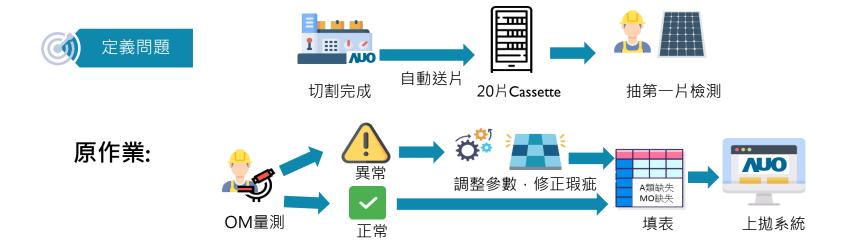
I. 專案介紹

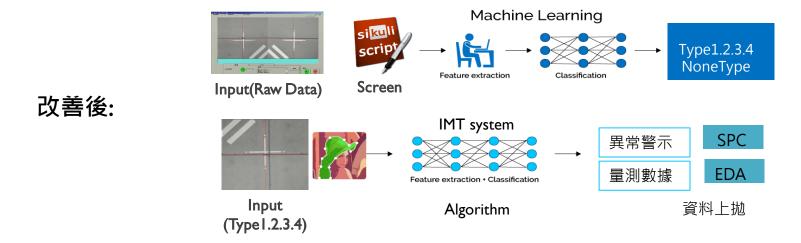
- I. 背景目的
- 2. 定義問題
- 3. 製程流程說明

2. 專案執行過程

- I. 資料蒐集
- 2. 資料前處理







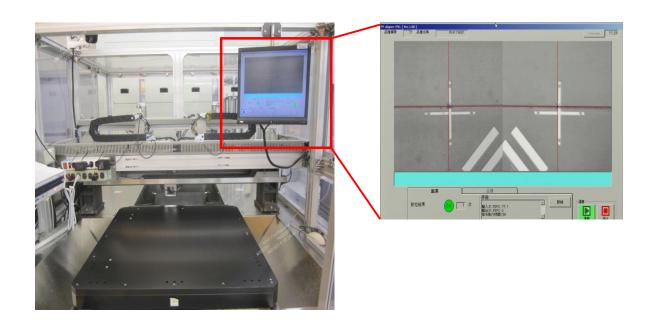


分析

□ 流程痛點: 抽樣檢測,且人工量測且紙本填寫耗時,可能有量測、填寫錯誤

□ 改善目標:透過影像辨識的方式自動測量精度,可片片檢測異常

□ 資料來源:收集X-ray Cutting影像,擷取攝影機訊號取出切割Data





分析

□ 改善人工: (移動站點+量測24個點+填表+Keyin資料上拋) x 抽檢次數 x 生產頻率

移動站點



抽檢量測24個點+填表



抽檢次數 (3/8共5次) (3/9共7次)

Keyin資料上拋

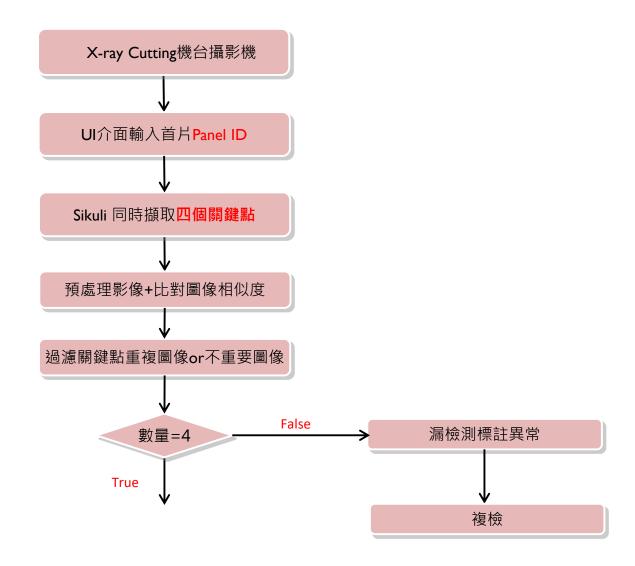


人工填表、人工keyin

X-Ray Cutting 精度量測改善流程



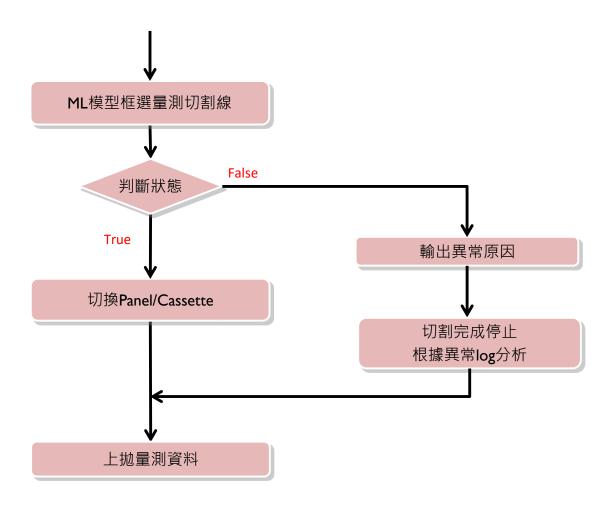




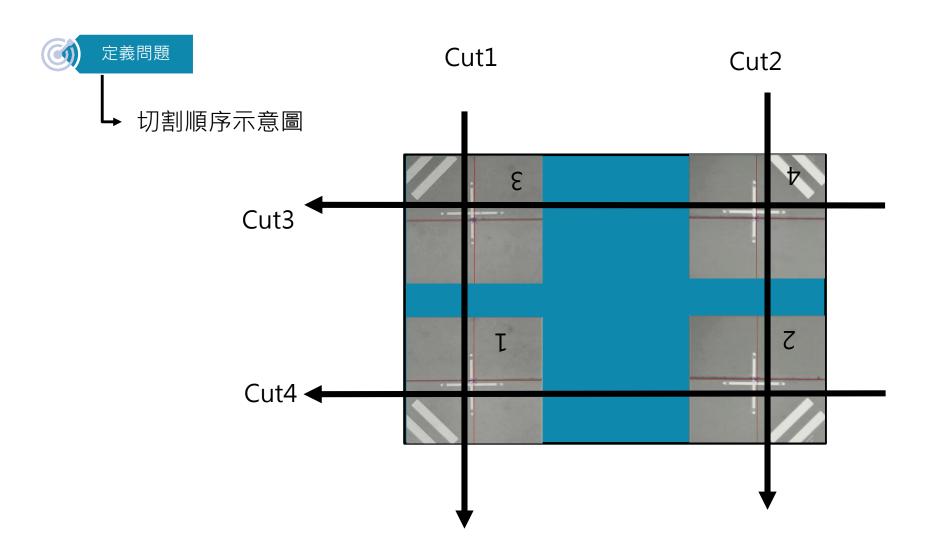
X-Ray Cutting 精度量測改善流程







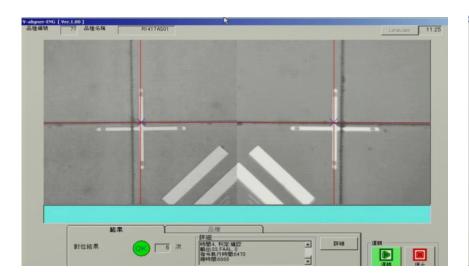


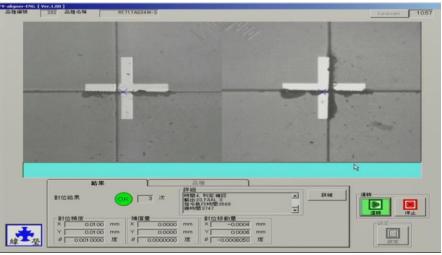




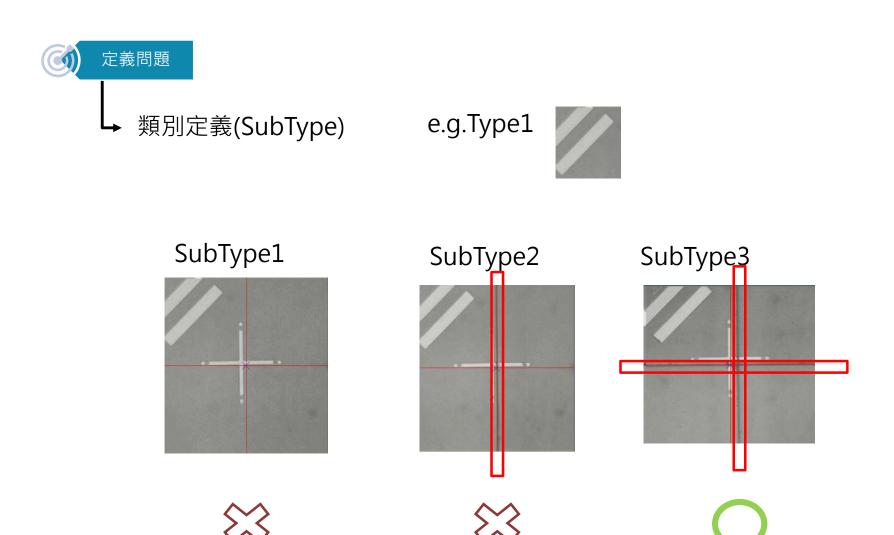


類別定義(Type)





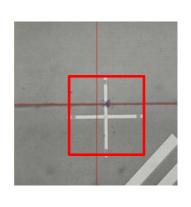








特徵顯現(去除紅線取特徵)



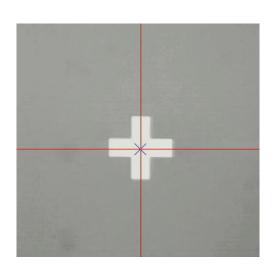


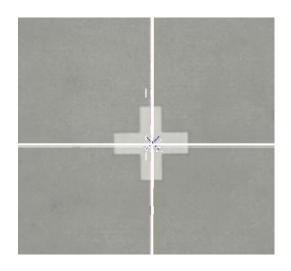




資料蒐集

特徵顯現(去除紅線取特徵)





How to modify 紅線影響





特徵顯現(去除紅線取特徵)

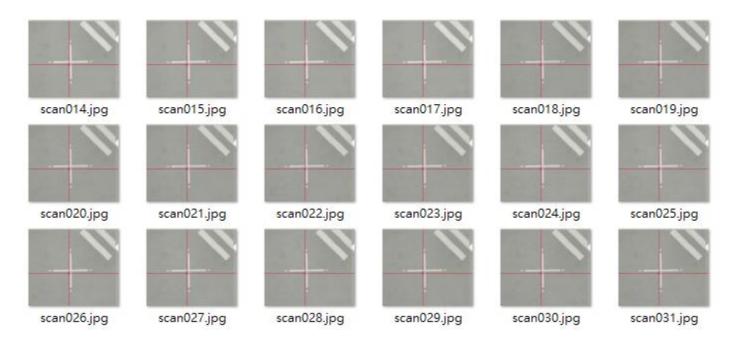


資料前處理(影像比對)



資料蒐集

重複截圖問題



How to modify 影像重複

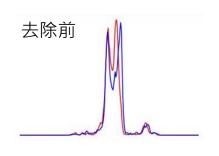


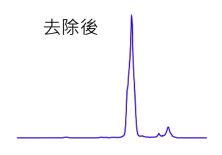


資料蒐集

特徵顯現(去除機台光影問題)











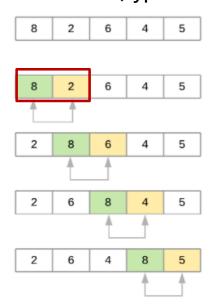


How to modify 影像重複

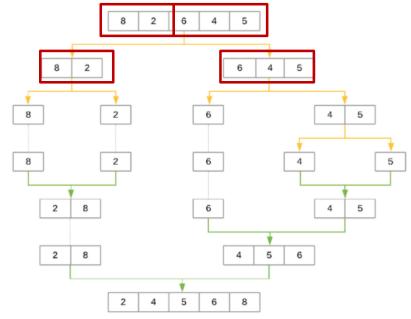




BubbleSort(Type1.2.3.4)

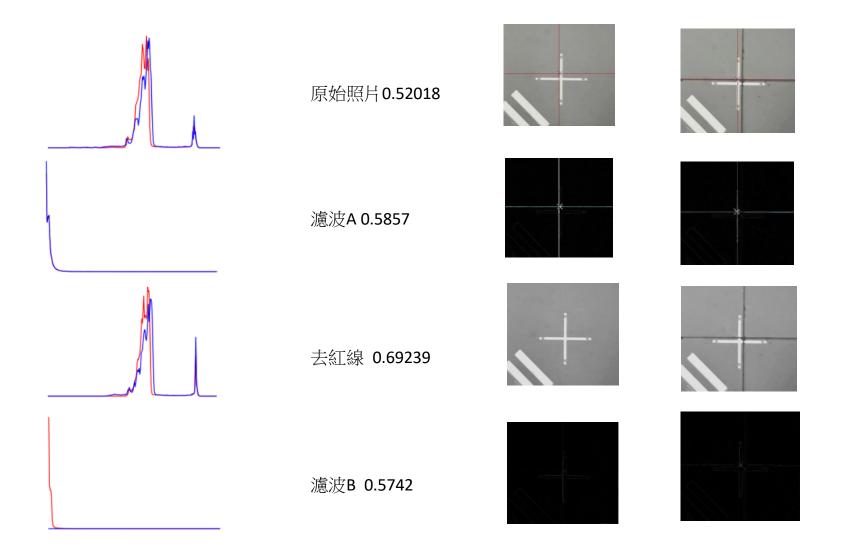


MergeSort(Type1 \ Type2 \ Type3 \ Type4)



比較實驗參數



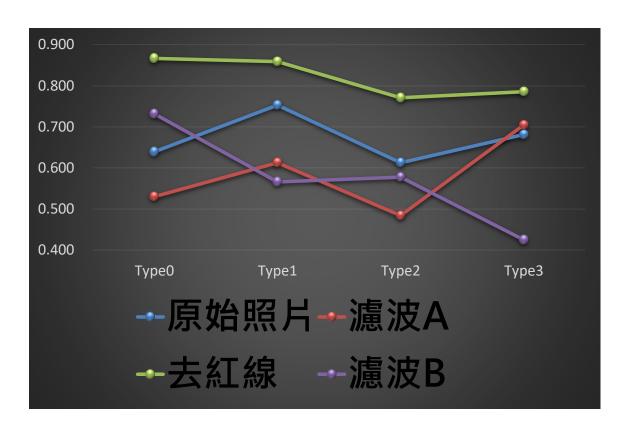


資料前處理(影像比對)





	原始照片	濾波A	去紅線	濾波B
Type0	0.639	0.53	0.867	0.732
Type1	0.753	0.613	0.859	0.566
Type2	0.613	0.484	0.771	0.578
Type3	0.681	0.705	0.786	0.425
AVG	0.6715	0.59425	0.82075	0.57525







兩兩比對

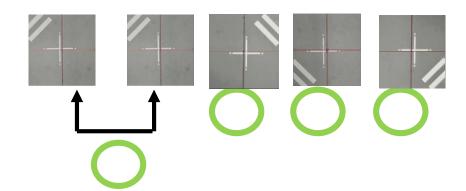






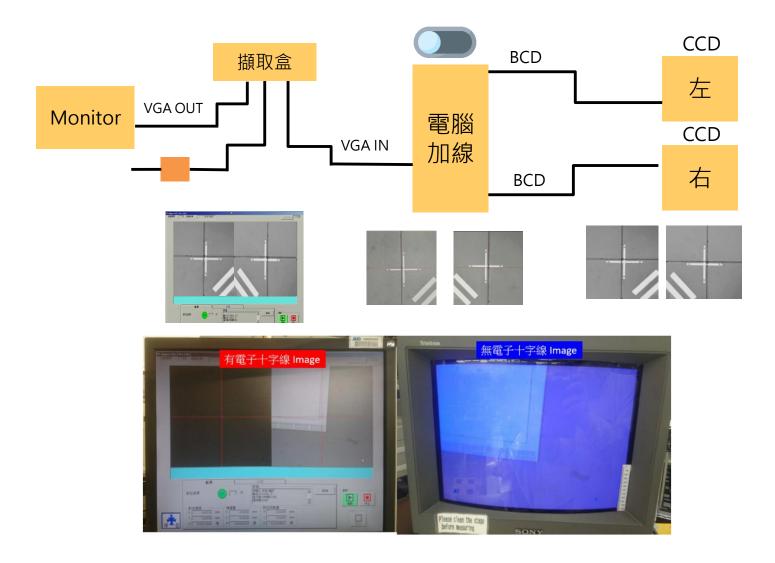






X-ray Monitor 切割對位線去除









比對優化

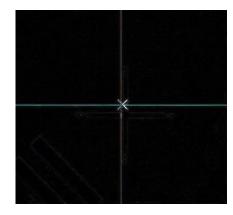
ResultA OK-相同Type比對數值越高越好
ERROR-同ResultA<同ResultB
ERROR-全ResultA下限<全ResultB上限

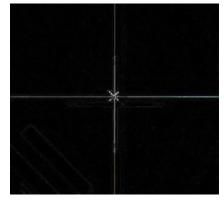
ResultB OK-不同Type比對數值越低越好

ERROR-同ResultB>同ResultA

ERROR-全ResultB上限>全ResultA下限

3/4Laplacian濾波					
門艦0.613					
Type0 Type1 Type2 Type3					
Type0_O	0.530264	0.5413052	0.5569659	0.589428	
Type1_O	0.556322	0.6131818	0.6138076	0.632124	
Type2_O	0.586149	0.5752244	0.4846446	0.635698	
Type3_O	0.585752	0.6910311	0.5953789	0.70054	





25%

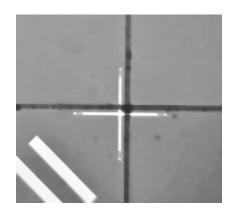


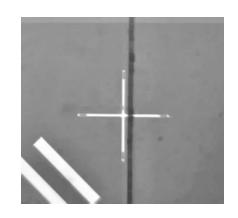


資料蒐集

比對優化

		3/11去紅線		
	3	門艦0.77783	5	
	Type0	Type1	Type2	Type3
TypeO_O	0.88045	0.7487912	0.7605826	0.739387
Type1_O	0.780321	0.8607659	0.8080678	0.767536
Гуре2_О	0.772589	0.8494423	0.7783511	0.710014
Гуре3_О	0.702587	0.7851074	0.7106963	0.793309
	3	3/15加減波器	坦	
		門艦0.79609	-	
	Type0	Type1	Type2	Type3
TypeO_O	0.90648	0.7783787	0.7871182	0.746157
Type1_O	0.806052	0.8923589	0.8405786	0.778374
Гуре2 О	0.806931	0.8754532	0.7960945	0.729517
Type3_O	0.729952	0.8035682	0.7448337	0.824042
	3/18	3二次濾波+	小 岡	
		門艦0.7335	5	
	Type0	Typel	Type2	Type3
Type0_O	0.852121	0.6461788		0.628418
Type1_O	0.681473	0.8059641	0.7264466	0.695532
Type2_O	0.708488	0.7899912	0.7520309	0.654608
Type3_O	0.563003	0.7151212	0.6191027	0.733355

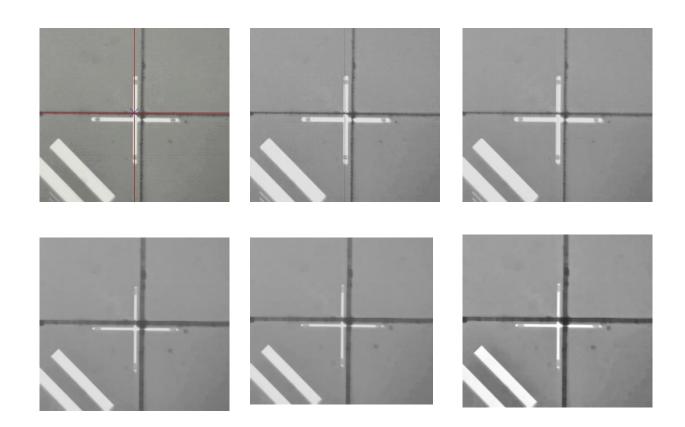




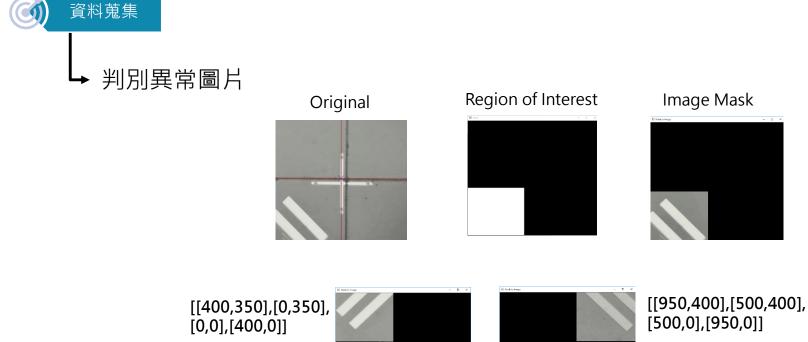




▶ 比對優化







[[400,900],[0,900], [0,500],[400,500]] [[950,900],[500,900], [500,500],[950,500]]





資料蒐集

→ 重新取樣

	Model	尺規	切割次數	切割頻率
O	R1417AS01	368*442	1 次切	4月2次,最快 4/10
0	R1717AS04	500*500 447*447	2 次切	每天
	R1717AS06	500*500 441*441	2 次切	4月5次,最快4/22
	R1714AS02	438*363	1 次切	4月4次,最快4/2

原取樣 R1417AS01 產出太少 故去對位紅線重新取樣,要更改取其他Model

