

PolyU EIE

Study Experience Sharing

Sunny Cheung

Date: 29 April 2023 (Sat)

Venue: N002



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Opening Minds • Shaping the Future
啟迪思維 • 成就未來

Self-Introduction

- HKDSE in 2015
- Study Bachelor of Engineering (工學士) in EIE (2015-2019)
- Work as a Data Scientist (數據科學家) in a Startup (初創公司) (2019 – 2020)
- Study Research Degree (研究生) in EIE (2020 - Now)

Entry Requirements

JUPAS 成績要求

	Programme	JUPAS Code	Average HKDSE Score	Admission Score Calculation Mechanism	Percentile	Chinese Language	English Language	Maths	Liberal Studies	Elective 1	Elective 2	Elective 3	M1/M2
2018	Electronic and Information Engineering - BEng(Hons)	JS3703	19.9	Any Best 5 Subjects	Median	3	3	5	4	5	3	-	-
					Lower Quartile	3	3	4	3	5	4	-	-
2019	Electronic and Information Engineering - BEng(Hons)	JS3703	20.4	Any Best 5 Subjects	Median	4	3	4	3	4	4	4	-
					Lower Quartile	4	4	4	3	4	4	-	-
2020	Electronic and Information Engineering - BEng(Hons)	JS3703	19.3	Any Best 5 Subjects	Median	3	3	4	3	4	4	3	-
					Lower Quartile	3	4	4	3	3	3	-	3
2021	Electronic and Information Engineering - BEng (Hons)	JS3703	19.1	Any Best 5 Subjects	Median	4	3	4	3	4	4	4	-
					Lower Quartile	3	3	4	3	4	4	4	-

Preferred subjects: Phy, Chem, Bio, ICT, M1/M2

3 Areas of Study in EIE

- Electronic Systems & IoT (電子系統及物聯網)
- **Artificial Intelligence and Information Engineering (人工智能及資訊工程)**
- Information Security (資訊保安)

大學生涯

- 學習與生活模式：

- 天地堂 (半日) (三日)

- 課外活動 (Soc)

- HALL



Week 3	15/9 (Mon)	16/9 (Tue)	17/9 (Wed)	18/9 (Thu)	19/9 (Fri)
08:00					
09:00	08:30 - 09:20 AMA1110, TUT002 R603			08:30 - 10:20 AMA1110, LEC001 ST111#	
10:00					
11:00					10:30 - 13:20 ELC1007, SEM001 M110
12:00	11:30 - 13:20 AP10009, LEC001 FJ304				
13:00		12:30 - 13:20 AP10009, LTL001 FJ304			
14:00					
15:00	14:30 - 15:20 EIE2264, LEC001 HJ304				
16:00		15:30 - 18:20 EIE2264, LAB001 CF004, CF504		15:30 - 18:20 IC2115, TRN001 W311	
17:00					
18:00					
19:00					

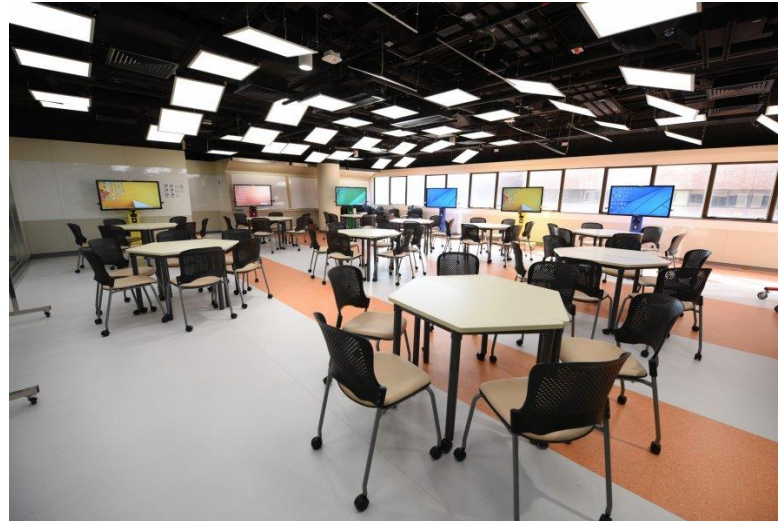
大學生涯

- 學習模式

Lecture



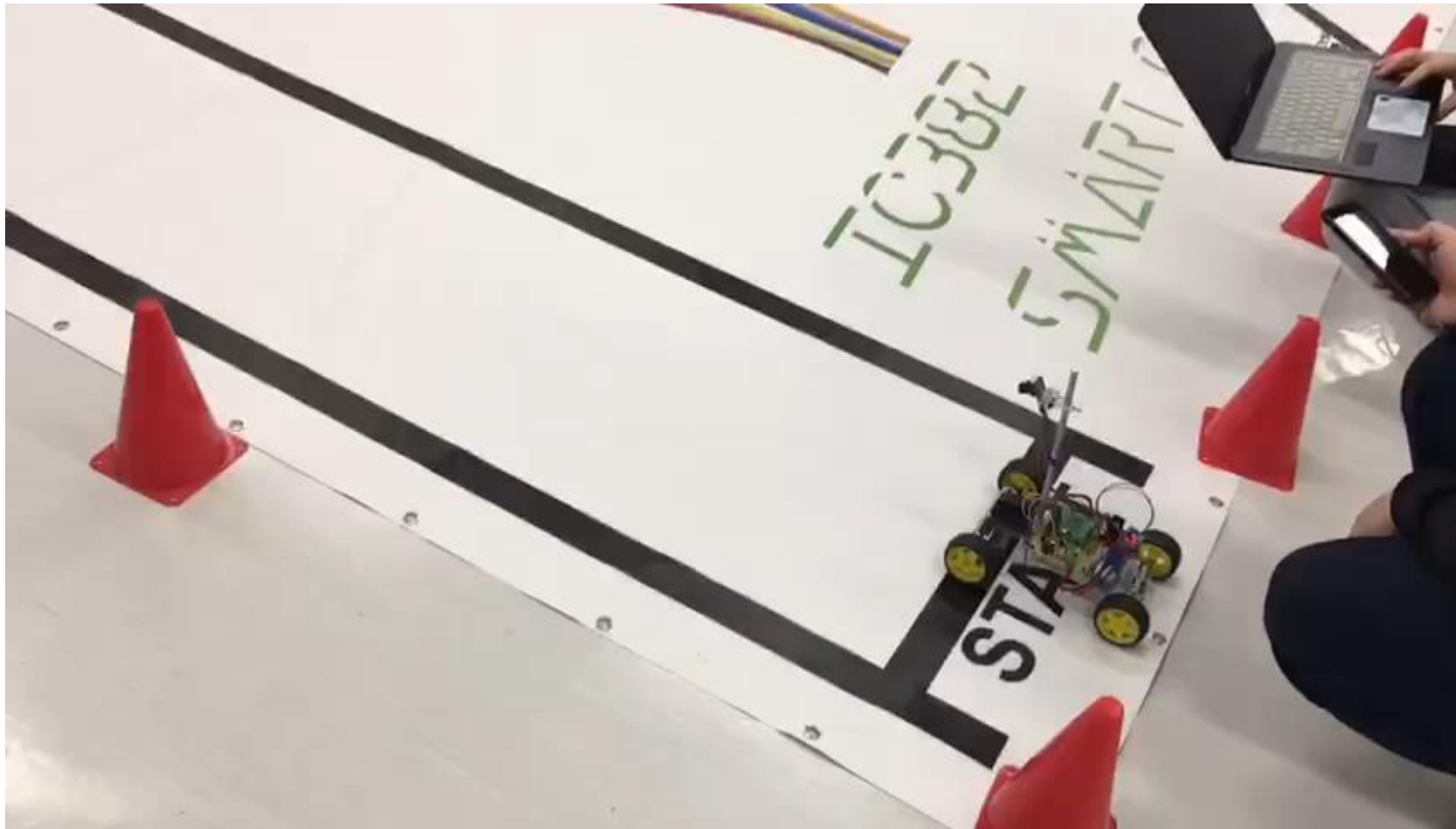
Tutorial



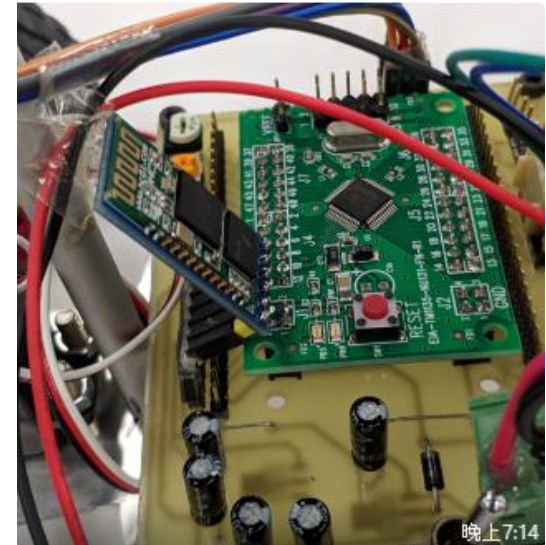
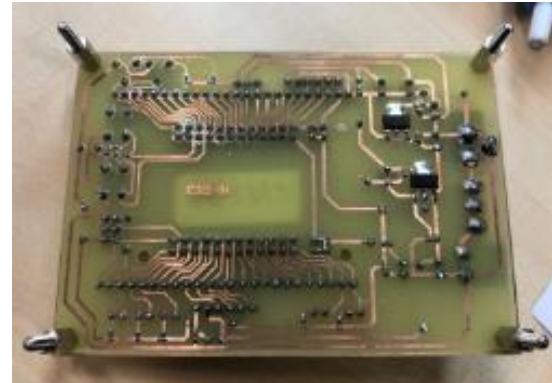
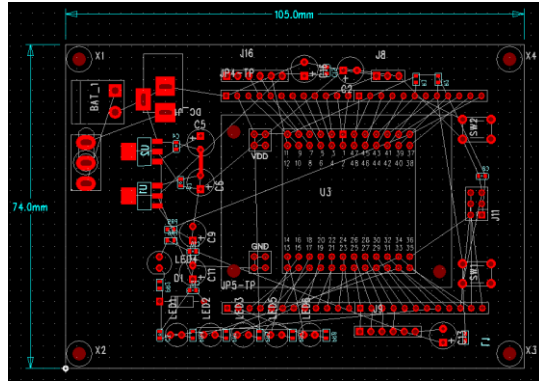
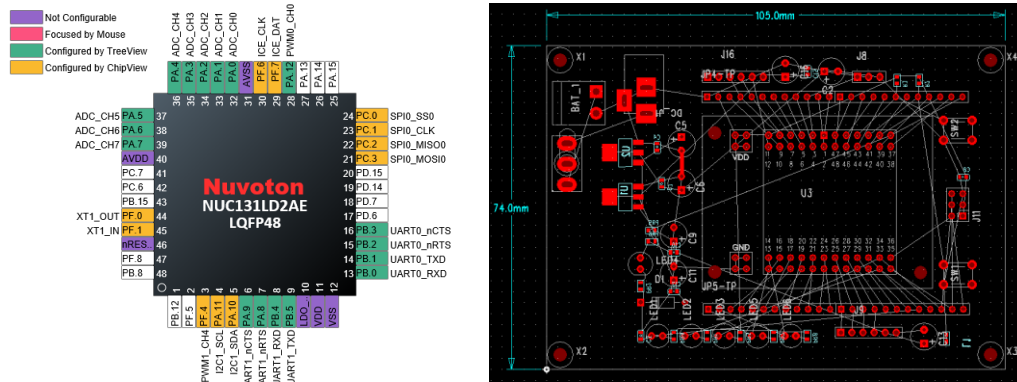
Laboratory



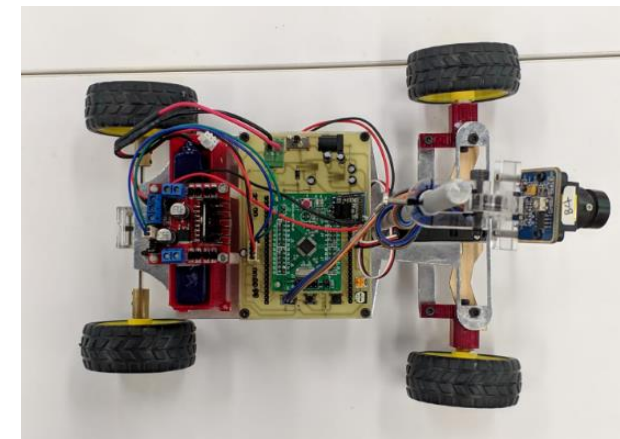
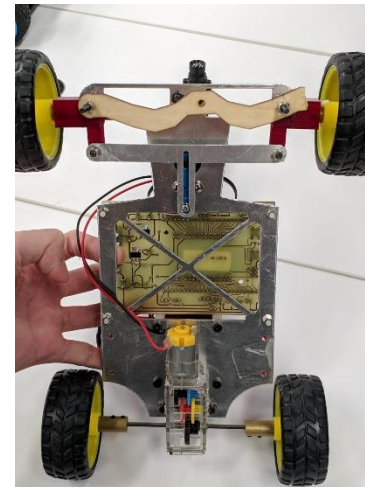
Electronic Systems & IoT



Electronic Systems & IoT



```
void PID(signed int pos[], double P, double I, double D)
{
    result_P = P*pos[2];
    result_I = I*((pos[2]+pos[1]+pos[0])/3);
    result_D = D*(pos[2]-pos[1]);
    result_PID = result_P + result_I + result_D;
    double turning = (result_PID+SERVO_CENTRE);
    if(turning>SERVO_MAX)
    {
        turning=SERVO_MAX;
    }
    else if (turning<SERVO_MIN)
    {
        turning=SERVO_MIN;
    }
    PWM_ConfigOutputChannel(PWM1, 4, SERVO_FREQ, turning);
}
```



Artificial Intelligence and Information Engineering

設計一個網頁比公司存貨/貨倉清單

Login to your account

Username

Password

Enter

Welcome back, a11

EIE4432 - Web Systems and Technologies
Inventory System of Electronic Components

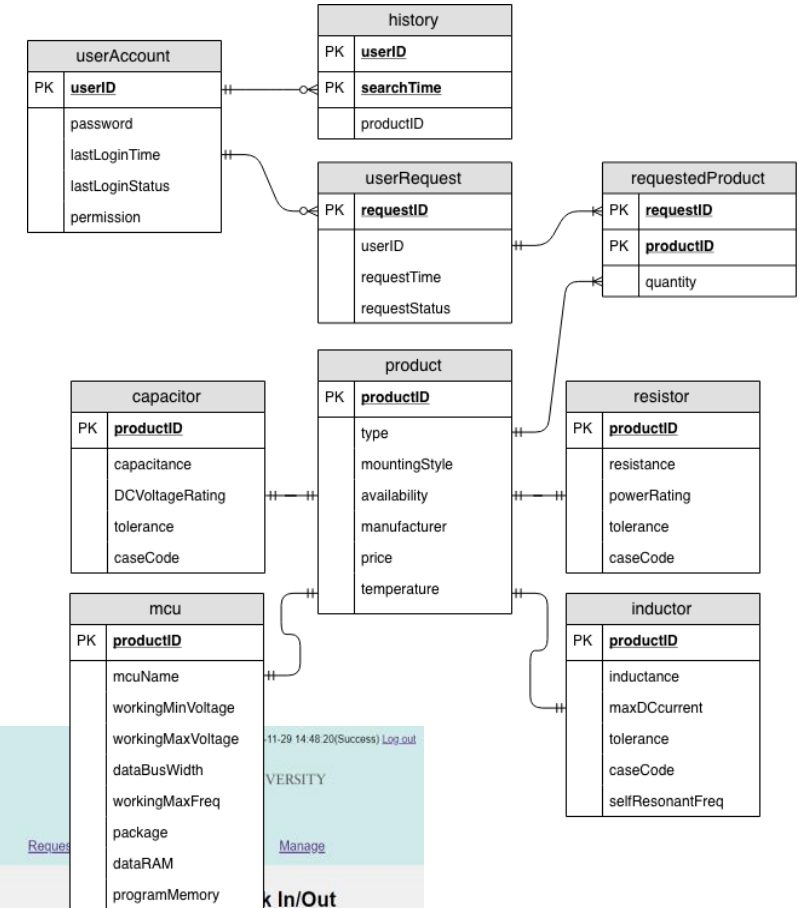
Home Search History Request Status Manage

Search History

Request Status Manage

Site Map

Home Search History Request Status Manage



Part Number: Search

Type: ☐ N.A. ☒ Resistor ☐ Capacitor ☐ Inductor ☐ MCU

Resistor:

Resistance: mΩ

Power Rating: mW

Tolerance: %

Case Code: 0805

Mounting Style:

☐ Any ☐ Through-hole ☒ SMD

Price:

Max Price: \$

In Stock: ☒ Yes ☐ No

Search

Searching Result

Index	Part No.	Type	Value	Datall	Price	Remain	Quantity	Action
1	P001	Resistor	0.5Ω	Tolerance: 1%, SMD	\$8.56	921	1	Select Detail
2	P008	Resistor	100KΩ	Tolerance: 1%, SMD	\$1.45	386	1	Select Detail

Select

Request No.	Part No.
R009	P001
R009	P008

Welcome back, a11

EIE4432 - Web Systems and Technologies
Inventory System of Electronic Components

Home Search History Request Status Manage

Request Table

Index	Request Number	Requested By	Request Submitted Time	Option
1	R001	a1	2017-01-01 08:00:15	Accept Decline
2	R002	d4	2017-02-01 08:00:15	Declined: Pending
3	R003	i9	2017-03-01 08:00:15	Accepted: Pending
4	R004	i9	2017-04-01 08:00:15	Accepted: Pending
5	R005	a1	2017-05-01 08:00:15	Accept Decline
6	R006	a1	2018-11-24 17:57:08	Accept Decline
7	R007	d4	2018-11-24 17:58:31	Accept Decline

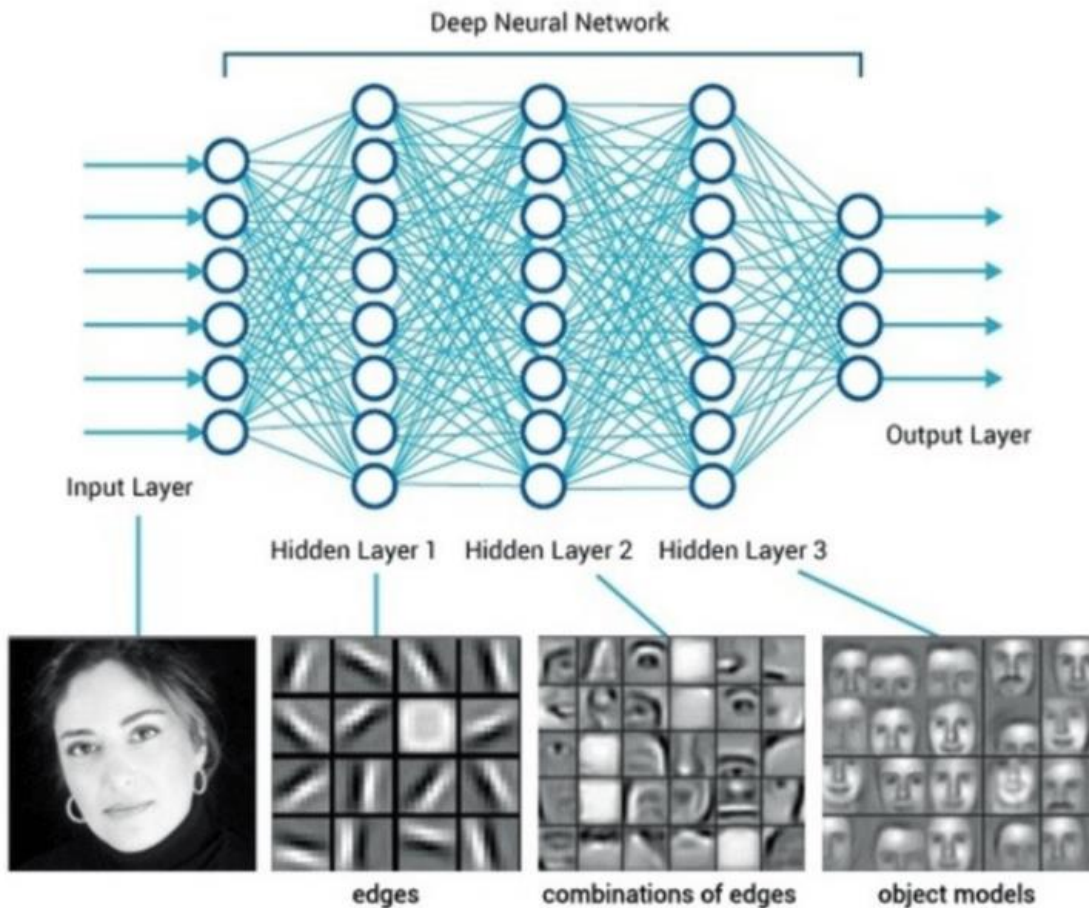
Part No.: Search

Type: ☐ Resistor ☐ Capacitor ☐ Inductor ☐ MCU

Upload Image

Artificial Intelligence and Information Engineering

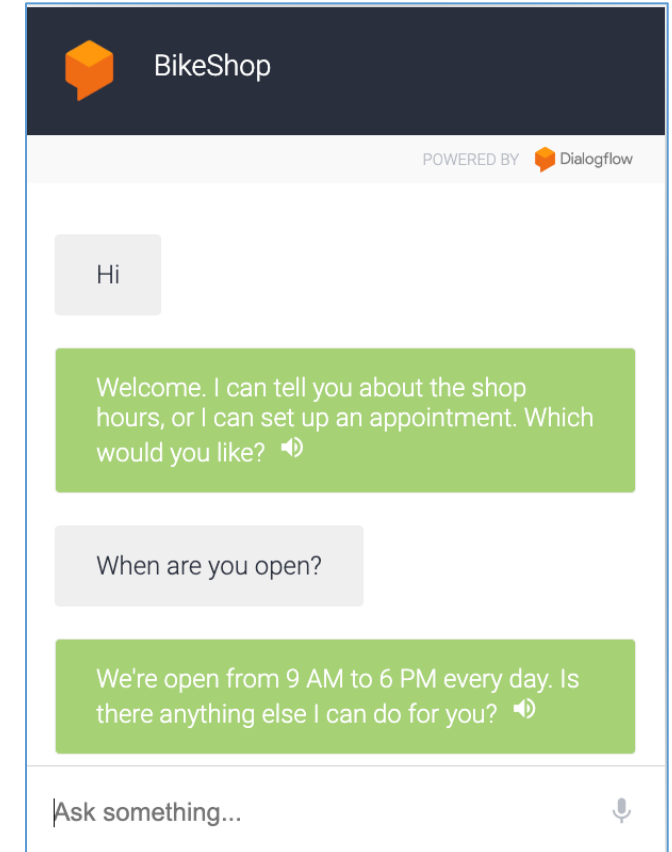
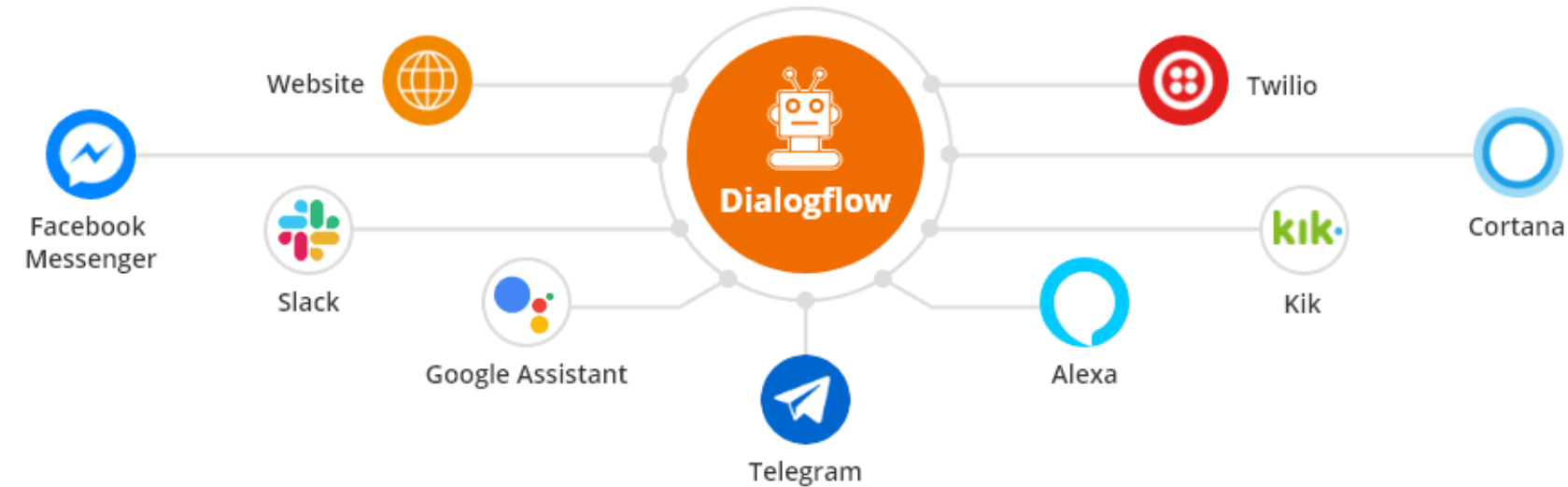
人臉識別和物件識別



Artificial Intelligence and Information Engineering

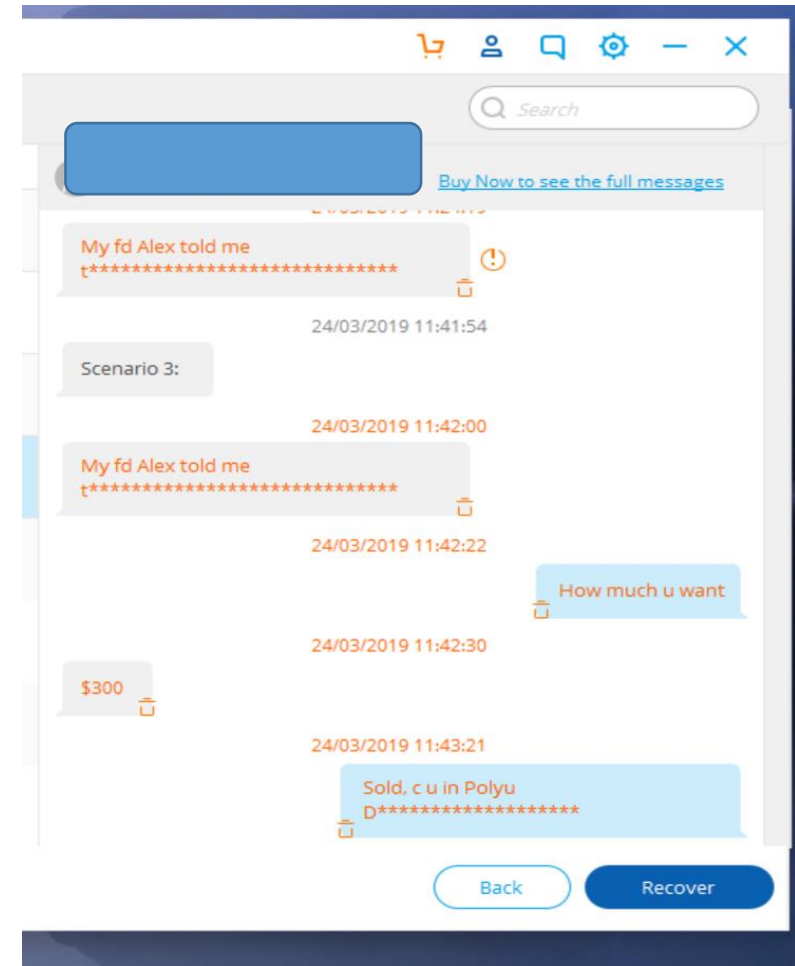
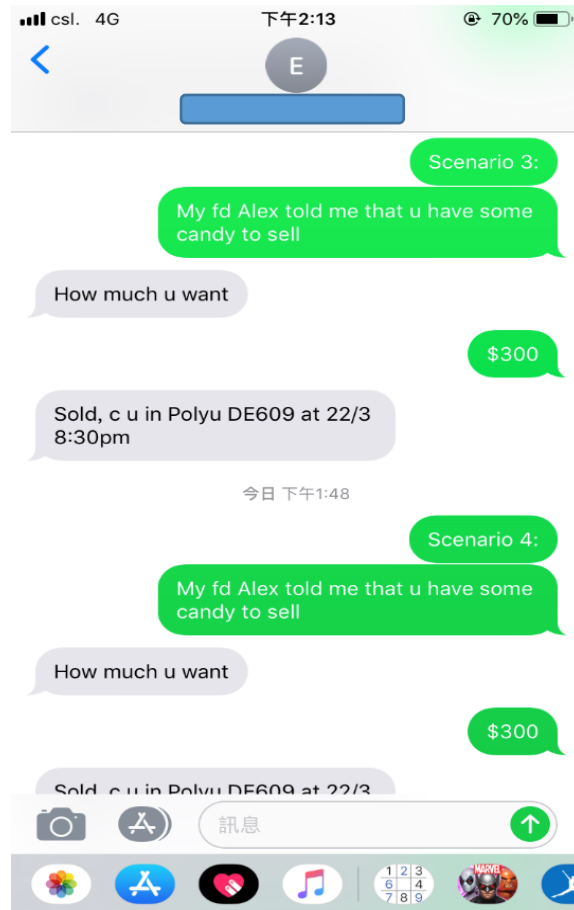
聊天機器人 (ChatBot)

Messenger, Telegram, LINE, etc.



Information Security

Spam Detection



Industrial Centre Training (IC Training)

- 電路板 (PCB) 設計與製作
- 3D Printing



4/29/2023

14

Work-Integrated Education (實習)

- Mainland WIE
- Taiwan WIE
- International WIE
- Local WIE



How EIE prepared for My Career Path

> 1 Year Full-Stack Engineer in a Startup

- **Programming Skill Sets (編程能力)**
 - **Python** for automated job and AI projects
 - **JavaScript** for web development in both Frontend and Backend
 - **SQL** for Big Data Storage in Cloud Environment (AWS)
- **Profession Communication Skills and Team Work**
 - Effective English communication in both spoken and written skills
 - Work with people across countries (Mainland, Singapore, etc.)



How EIE prepared for My Research Study

> Professional Academic English (英文能力)

- Reading and Writing Research Papers (learnt in **Final Year Project**)
- Academic Presentation Skills (taught in Professional English Courses)

> Solid Problem Solving Skills (解決問題能力)

- Independent Problem Solving Mindsets (learnt in **Final Year Project**)
- Programming and AI (learnt through years 2 - 4)

Simultaneous Fake News and Topic Classification via Auxiliary Task Learning

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Abstract— Using social media, in particular, reading news articles, has become a necessary daily activity and an important way of spreading information. Classification of topics of new articles can provide up-to-date information about the current state of politics and society. However, this convenient way of sharing information can lead to the growth of falsification. Therefore, distinguishing between real and fake news, as well as fake-news classification, have become essential and indispensable. In this paper, we propose a new and up-to-date dataset for both fake-news classification and topic classification. To the best of our knowledge, we are the first to construct a dataset with both fake-news and topic labels, and employ multi-task learning for learning these two tasks simultaneously. We have collected 21K online news articles published from January 2013 to March 2020. We propose an auxiliary-task long short-term memory (AT-LSTM) neural network for text classification via multi-task learning. We evaluate and compare our proposed model to five baseline methods, via both single-task and multi-task learning, on this new benchmark dataset. Experimental results show that our proposed AT-LSTM model outperforms the single-task learning methods and the hard parameter-sharing multi-task learning methods. The dataset and codes will be released in the future.

Keywords—web data mining, fake-news classification, topic classification, multi-task learning

I. INTRODUCTION

The spread of misinformation on the Internet is an influential and critical issue, especially in social media. Fake-news articles provide false information to the public and have a strong impact on both politics and society (an example is shown in Fig. 1). There is an increasing trend for fake news since the 2016 US Presidential election [1]. Automatic fake-news detection has raised public interest, since it is useful to reduce human effort in classification. Several ways of identifying online fake-news articles have been proposed in recent years. For example, there are tools for spotting domain names and IP addresses of fake-news sources. However, it is easy to change the domain names or dynamic IP addresses, so it is difficult to prevent fake news. This also leads to the need for a significant amount of human effort to maintain the list of the sources. Moreover, people may repost the fake-news articles on their social network sites without specifying the

corpus for fact-checking classification through POLITIFACT.COM's API. The study considered the statements of a fact with several types of metadata, such as speakers, subject, history, etc. This dataset contains fact-like statements, which are different from the form of news articles. They proposed a hybrid convolutional neural network for fake statement classification by concentrating on the statements and their metadata features. Our proposed model was inspired by this method, but we employ the long short-term memory (LSTM) encoders and the classification of the meta-data.

The Kaggle challenge [4], developed by George McIntire, provides a dataset for classifying fake-news articles. In this challenge, the fake-news articles were collected from the websites listed in BS detector [5], while those real-news articles were from traditional news media websites, such as *New York Times*, *Bloomberg*, and *The Guardian*. Our data collection strategy is similar to this challenge. On top of this, we have further crawled the news meta-categories that are used for topic classification, as shown in Fig. 1.



Figure 1. A fake political article published in newsthump.com.

Topic classification, also called text categorization, has a longer history than fake-news classification. It has been

Job and Further Study of My Classmates

> Career Path

- Firmware Engineer at ASTRI, Hong Kong (科學園)
- Software Engineer at Shopee, Singapore (蝦皮購物)

> Academic Path

- Study PhD at University of Toronto, Canada (加拿大多倫多大學)
- Study PhD at Georgia Institute of Technology, US (美國佐治亞理工學院)

Thank You

Q & A