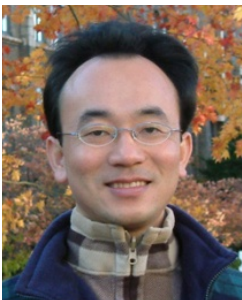# AI Robo-Advisor and Conversational Commerce

Seminar for Advanced Business Issues
Chair: Prof. Chih-Chien Wang
Date Time: January 2, 2019, 10:00 - 12:00
Place: 8F40, Business Building, National Taipei University, Taipei, Taiwan

Min-Yuh Day
Assistant Professor
Dept. of Information Management, Tamkang University

http://mail. tku.edu.tw/myday/
2019-01-02

Min-Yuh Day, Ph.D.

Assistant Professor, Information Management, TKU

Visiting Scholar, IIS, Academia Sinica

Ph.D., Information Management, NTU

Publications Co-Chairs, IEEE/ACM International Conference on
Advances in Social Networks Analysis and Mining (ASONAM 2013-)

Program Co-Chair, IEEE International Workshop on
Empirical Methods for Recognizing Inference in TExt (IEEE EM-RITE 2012-)

Workshop Chair, The IEEE International Conference on
Information Reuse and Integration (IEEE IRI)

Outline

- **AI Robo-Advisor**

- **Conversational Commerce**

- **Case Study in Taiwan**

2018 The 23ᵗʰ International ICT Innovative Services Awards (InnoServe Awards 2018)

Inno$erve
Awards

- Annual ICT application competition held for university and college students

- The largest and the most significant contest in Taiwan.

- More than ten thousand teachers and students from over one hundred universities and colleges have participated in the Contest.

https://innoserve.tca.org.tw/award.aspx

AIWISFIN
AI Conversational Robo-Advisor
(人工智慧對話式理財機器人)

First Place, InnoServe Awards 2018

2018 International ICT Innovative Services Awards (InnoServe Awards 2018)
(2018第23屆大專校院資訊應用服務創新競賽)

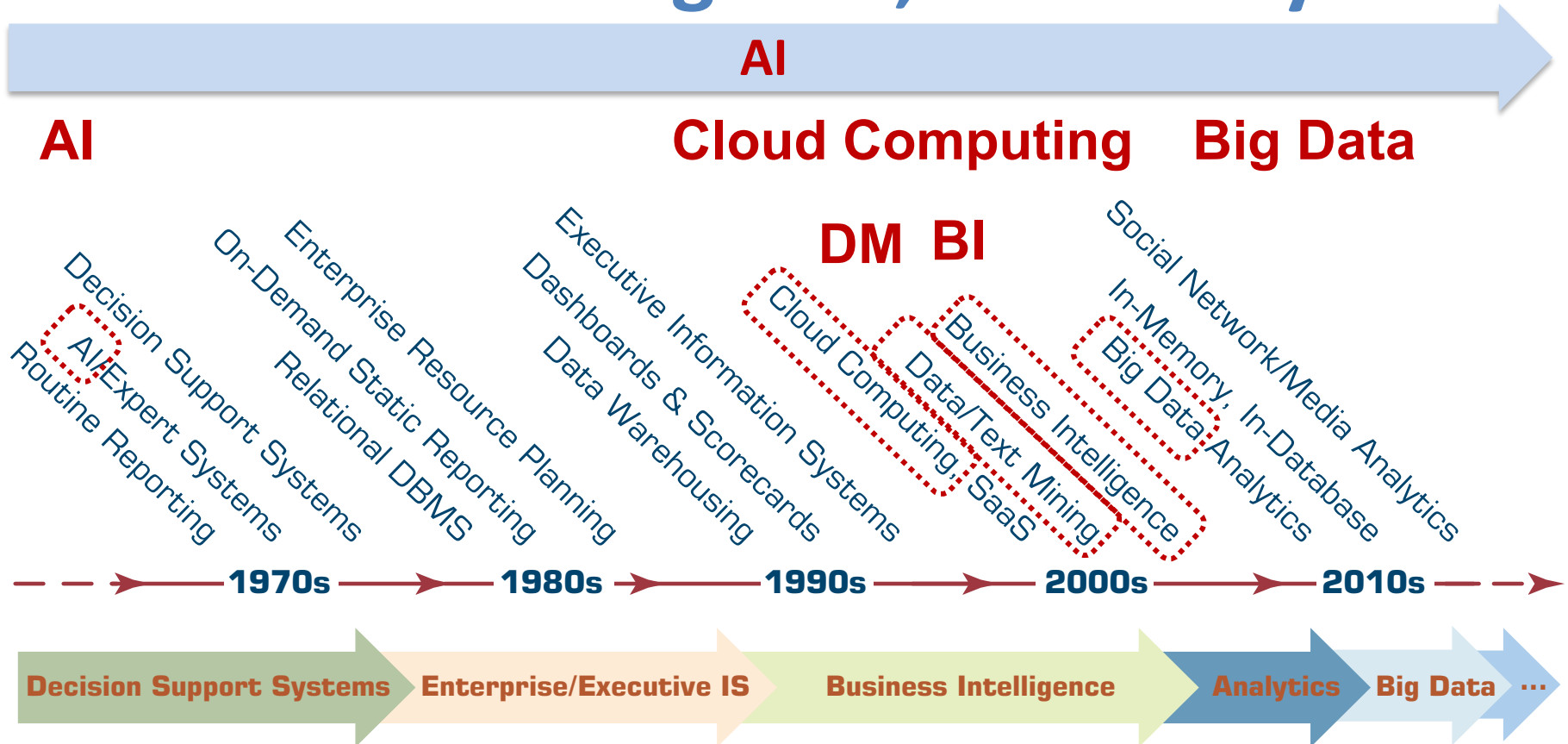
https://innoserve.tca.org.tw/award.aspx

AI
Robo-Advisor

Artificial Intelligence (AI)

AI, Big Data, Cloud Computing
Evolution of Decision Support, Business Intelligence, and Analytics

AI

AI   **Cloud Computing**   **Big Data**

DM **BI**

Routine Reporting
AI/Expert Systems
Decision Support Systems
On-Demand Static Reporting
Enterprise Resource Planning
Relational DBMS
Executive Information Systems
Dashboards & Scorecards
Data Warehousing
Cloud Computing, SaaS
Data/Text Mining
Business Intelligence
Big Data Analytics
In-Memory, In-Database
Social Network/Media Analytics

1970s — 1980s — 1990s — 2000s — 2010s

Decision Support Systems → **Enterprise/Executive IS** → **Business Intelligence** → **Analytics** → **Big Data** → …

Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017),
Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

9

AI in
FinTech

Robo-Advisors

FinTech high-level classification

Lending	Payments	**Robo Advisors**	Analytics	Others

Profile	Advice	Re-Balance	Indexing
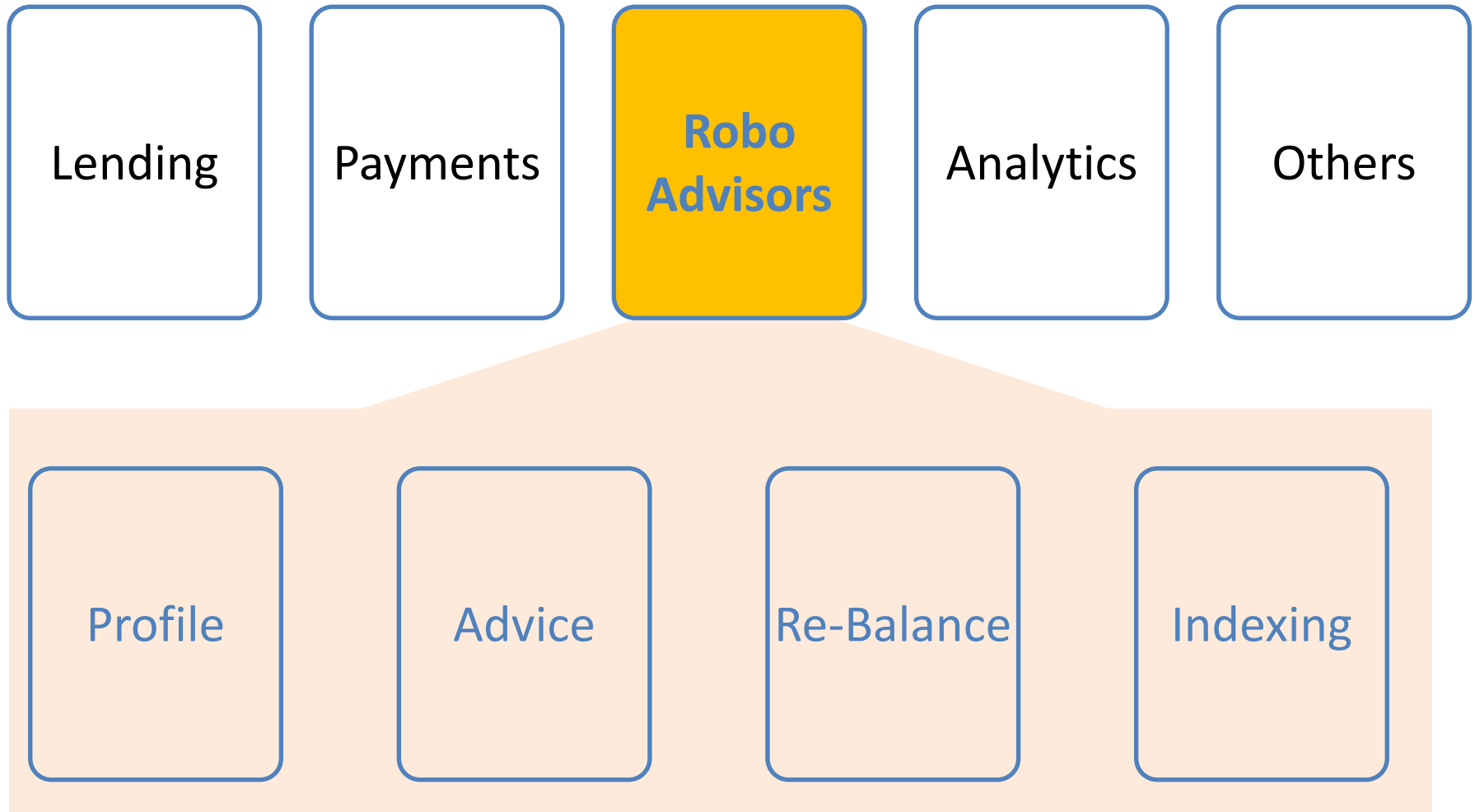
Wealthfront

Financial Planning & Robo-Investing for Millennials

Plan ▾   Invest   Borrow   Expertise ▾   **LOG IN**   **GET STARTED**

WEALTHFRONT

Meet your financial copilot

We'll build a free financial plan for the life you want and automate your investments at a low cost.

Our all-in-one solution gives you the financial expertise you need, right in your pocket. No spreadsheets, no annoying sales calls, no judgment.

GET STARTED

https://www.wealthfront.com/

Betterment
Online Financial Advisor

https://www.betterment.com/

Financial Advisor FinTech Solutions

Financial Advisor FinTech Solutions Map

Source: https://www.kitces.com/fintechmap

From **Algorithmic Trading** to **Personal Finance Bots:** 41 Startups Bringing **AI** to **Fintech**

From Algorithmic Trading To Personal Finance Bots: 41 Startups Bringing AI To Fintech

AI in Fintech

41 Startups Bringing Artificial Intelligence To Fintech

General Purpose/ Predictive Analytics

AYASDI · Digital Reasoning · context relevant · H₂O · KENSHO · cortical.io · Numenta · turi · DataRobot · nervana SYSTEMS

Market Research & Sentiment Analysis

indico · acuity TRADING · Lucena Quantitative Analytics · NUMERAI · Dataminr

Search Engine

alphasense

Quantitative Trading

sentient technologies · CLONE ALGO · Alpaca · WALNUT ALGORITHMS

Blockchain

Skry · EUKLID

Debt Collection

TrueAccord

AI Assistants/Bots

KASISTO · TRIM · Penny · INSURIFY · SURE. · Cleo · FinGenius

Fraud Detection

feedzai · BIOCATCH Less Friction. Less Fraud.

Credit Scoring

TypeScore · aire · credit vidya · zest finance · ADF APPLIED DATA FINANCE · Wecash 闪银奇昇 · CREAM FINANCE

Personal Banking

personetics® TAKING DIGITAL BANKING PERSONAL · SBDA group

Artificial Intelligence (AI) in Fintech

Source: https://www.cbinsights.com/blog/artificial-intelligence-fintech-market-map-company-list/

Artificial Intelligence (AI) in Fintech

Quantitative Trading: sentient technologies, CLONE ALGO, Alpaca, WALNUT ALGORITHMS

AI Assistants/Bots: KASISTO, TRIM, Penny, INSURIFY, SURE., Cleo, FinGenius

Credit Scoring: TypeScore, aire, creditvidya, zest finance, ADF APPLIED DATA FINANCE, Wecash闪银奇异, CREAM FINANCE

Blockchain: Skry, EUKLID

Fraud Detection: feedzai, BIOCATCH Less Friction. Less Fraud.

Personal Banking: personetics TAKING DIGITAL BANKING PERSONAL, SBDA group

Debt Collection: TrueAccord

FinTech

Financial Technology FinTech

"providing financial services by making use of software and modern technology"

Financial Services

Financial Services
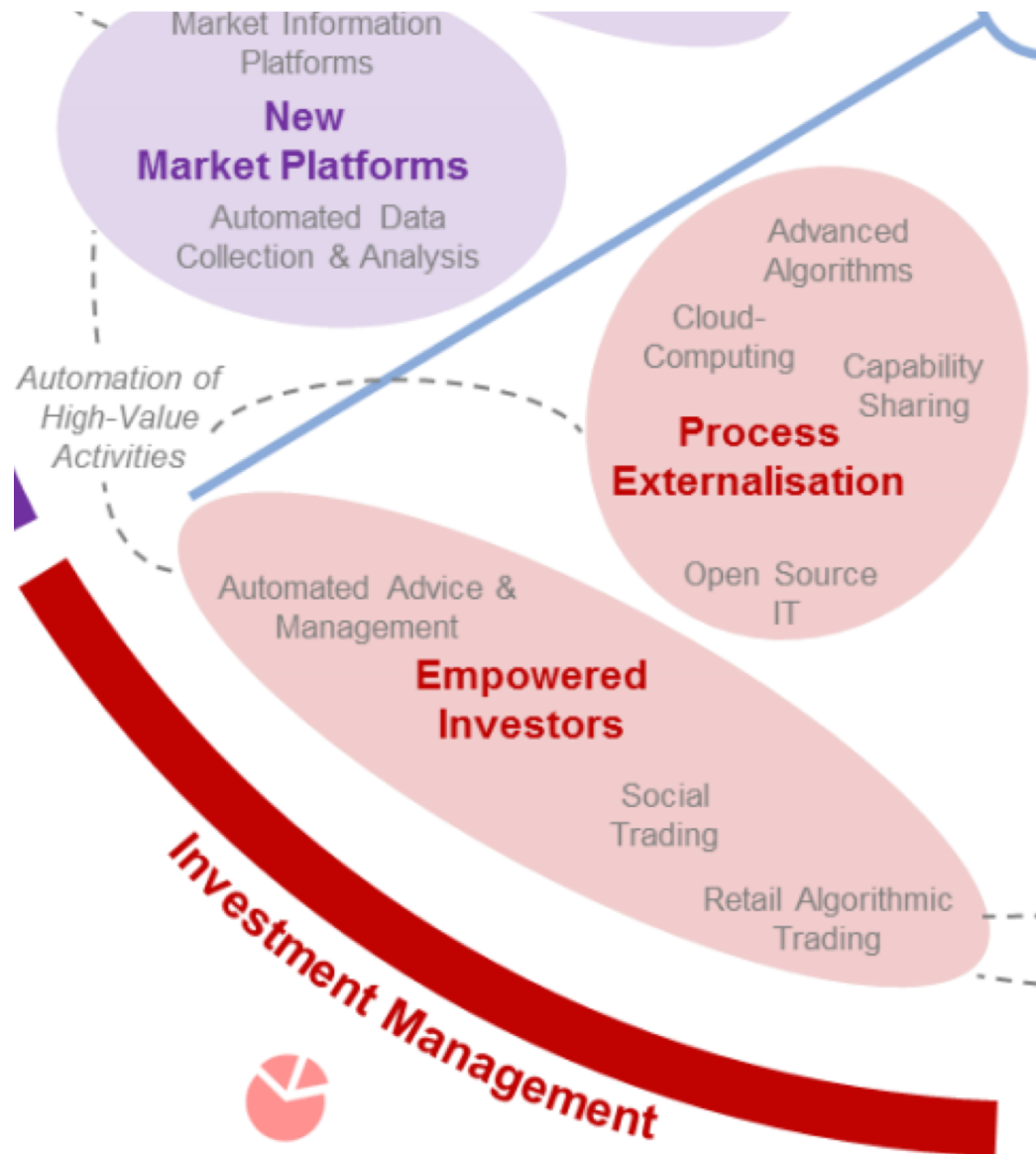
FinTech: Financial Services Innovation

FinTech:
Financial Services Innovation

1. Payments
2. Insurance
3. Deposits & Lending
4. Capital Raising
5. Investment Management
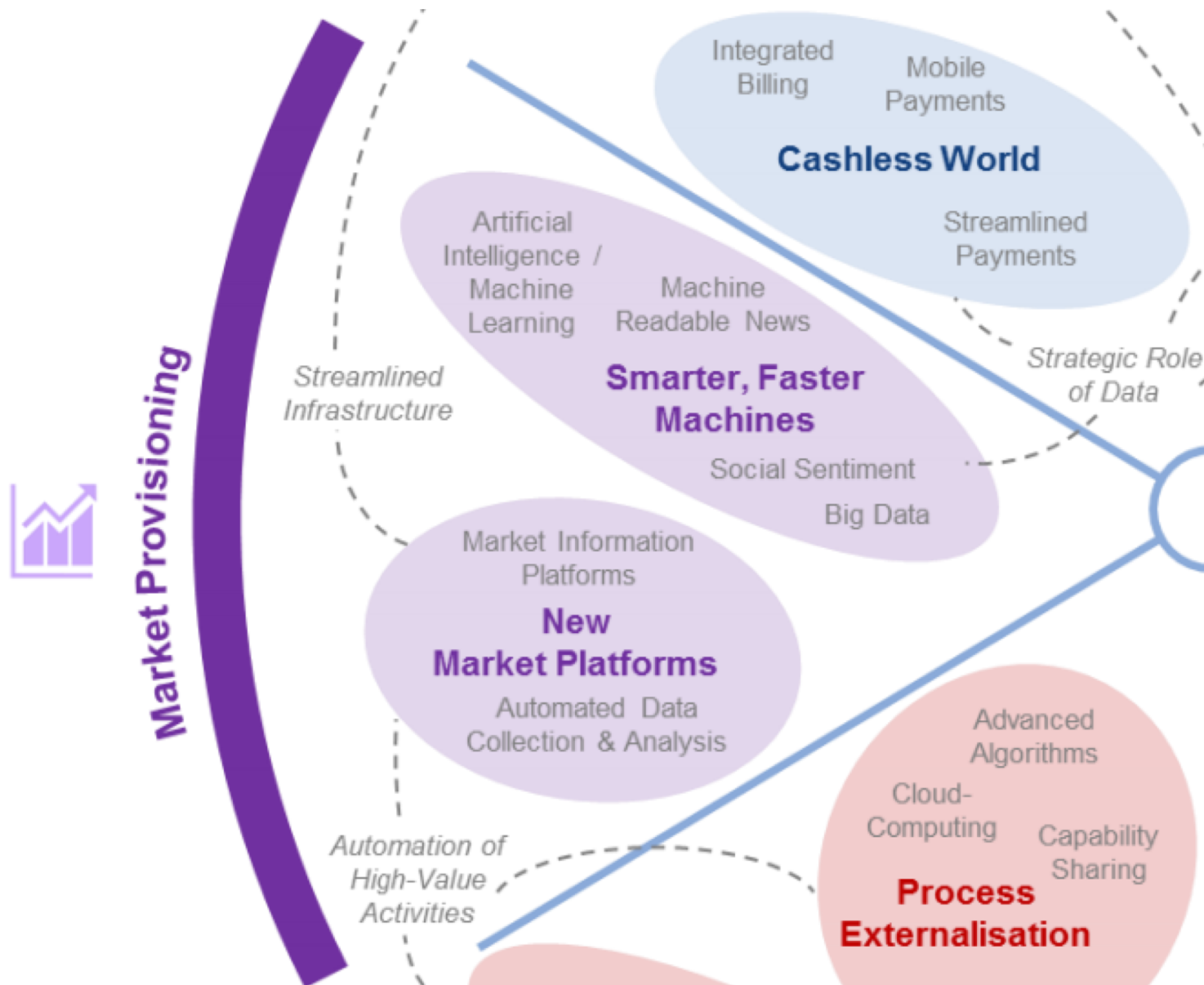### 6. Market Provisioning

5 FinTech: Investment Management

Market Information Platforms

New Market Platforms

Automated Data Collection & Analysis

Automation of High-Value Activities

Advanced Algorithms

Cloud-Computing

Capability Sharing

Process Externalisation

Open Source IT

Automated Advice & Management

Empowered Investors

Social Trading

Retail Algorithmic Trading

Investment Management

5 FinTech: Investment Management Empowered Investors Process Externalization

FinTech: Market Provisioning

6

6 **FinTech: Market Provisioning**
Smarter, Faster Machines
New Market Platforms

The **New Alpha**: 30+ Startups Providing Alternative Data For Sophisticated Investors

New sources of data mined by startups like Foursquare, Premise, and Orbital Insight are letting investors understand trends before they happen.
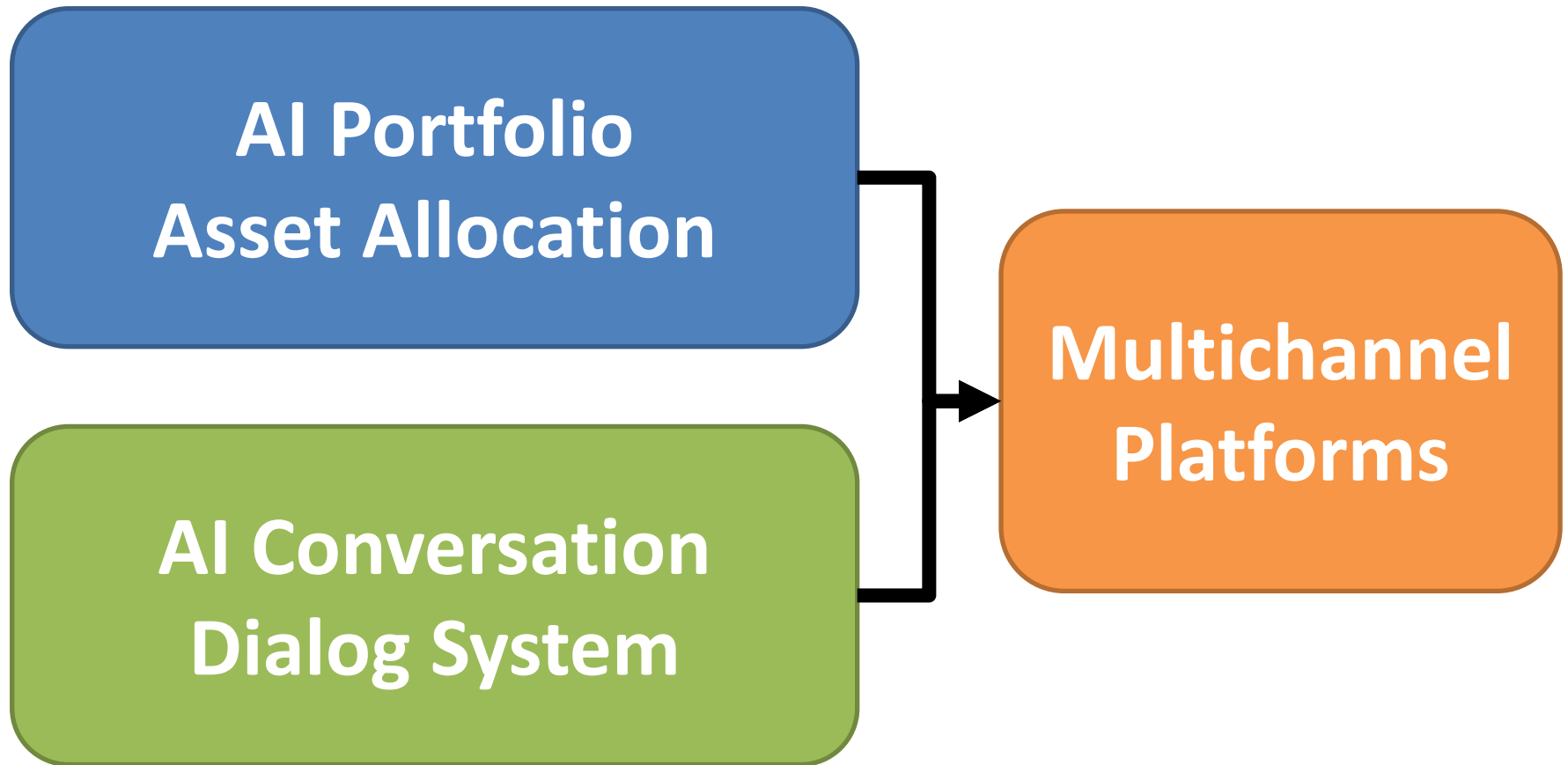
The New Alpha: 30+ Startups Providing Alternative Data For Sophisticated Investors

Alternative Data Sources

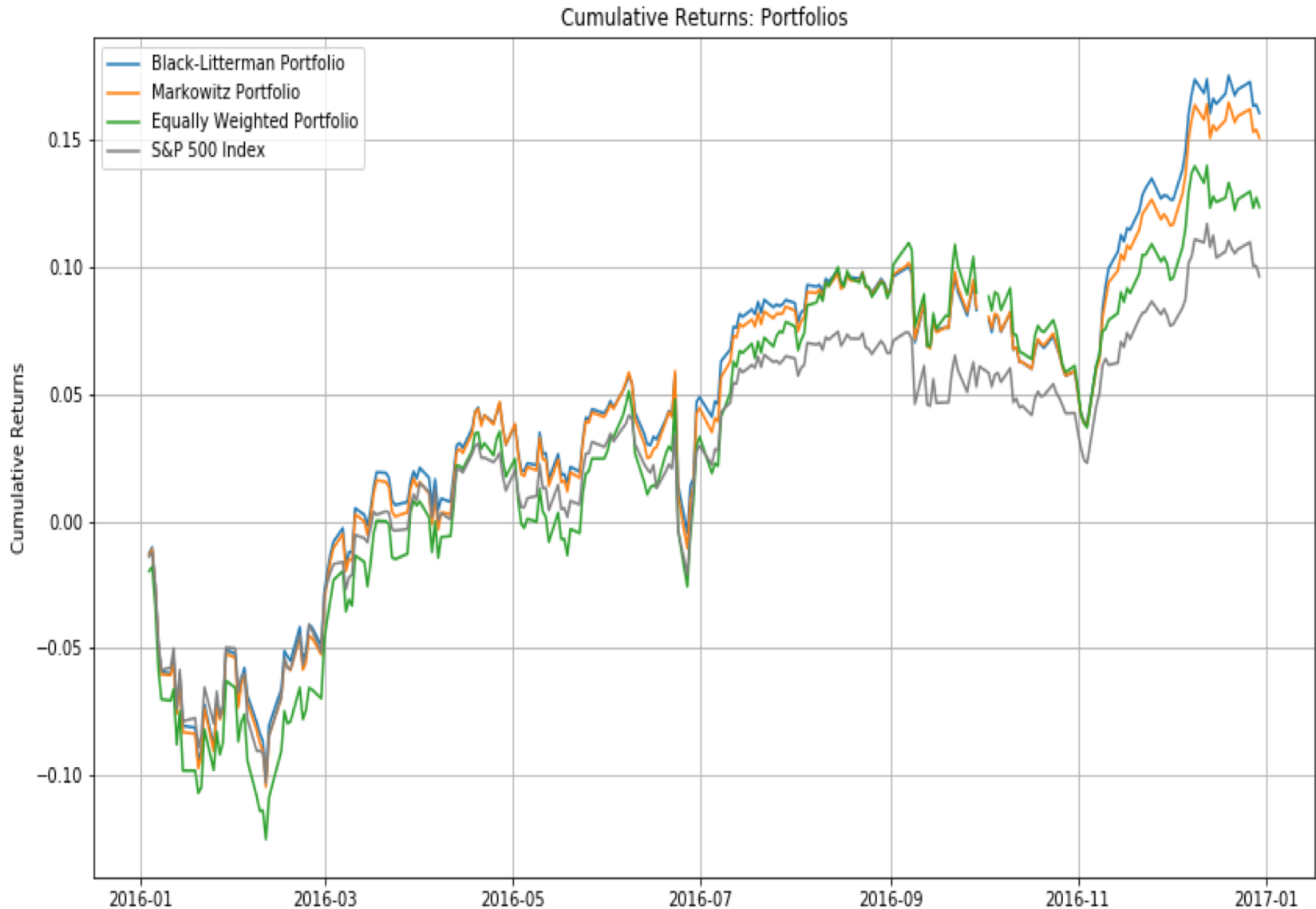# Artificial Intelligence for Conversational Robo-Advisor
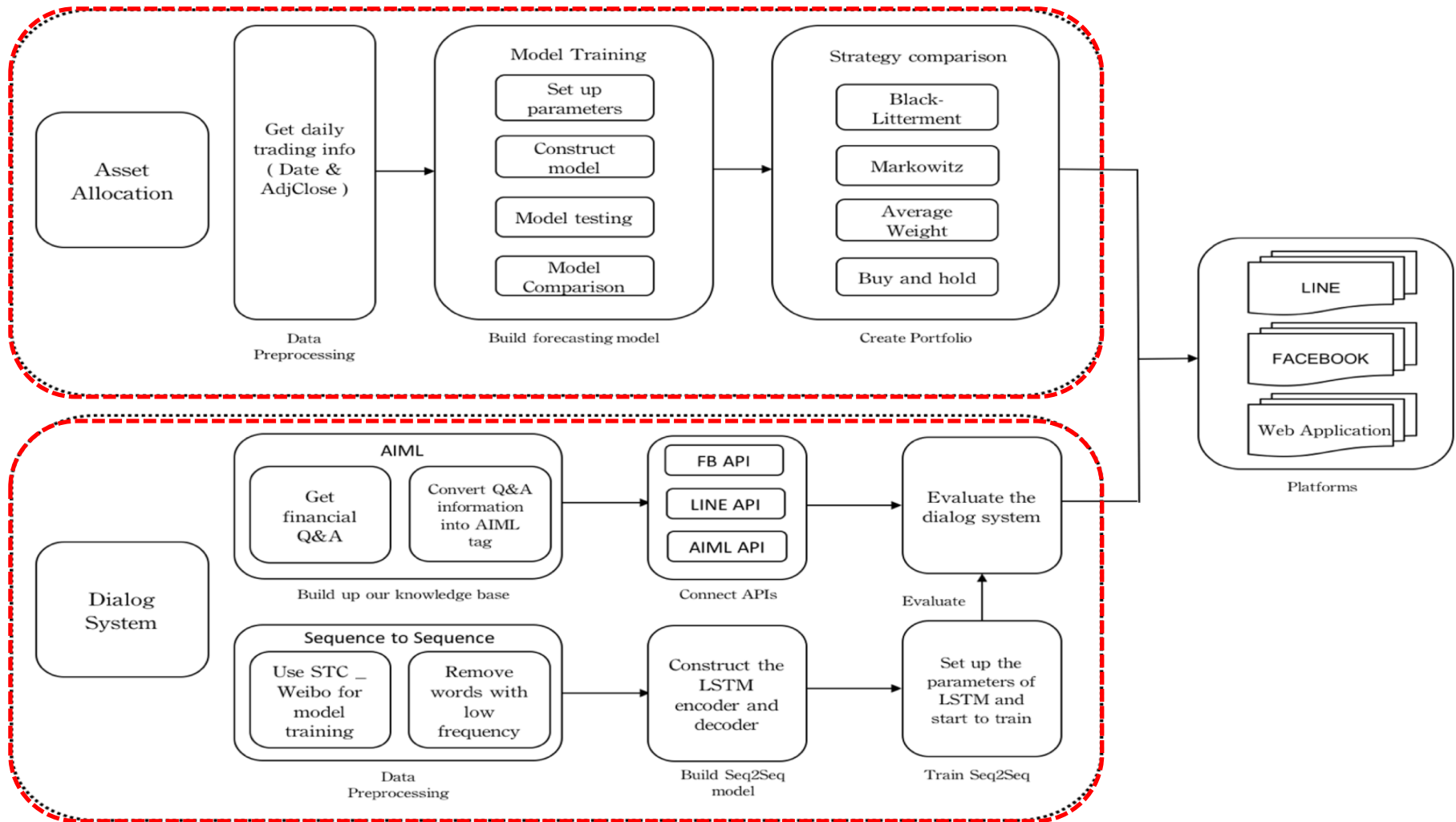
AI Conversational Robo-Advisor

AI Portfolio Asset Allocation

AI Conversation Dialog System

Multichannel Platforms

Portfolio Performance in 2016 Annual Portfolio Statistics

	Black-Litterman Portfolio - the LSTM Investor Views	Markowitz Portfolio	Equally Weighted Portfolio	S&P 500 Index
Annual return	16.151%	15.172%	12.428%	9.643%
Annual volatility	13.897%	14.365%	15.870%	13.169%
Sharpe ratio	1.14697	1.05534	0.81762	0.76492
Stability	0.82500	0.82515	0.82514	0.78754
Max drawdown	-10.105%	-10.465%	-12.529%	-10.306%
Skew	-0.35652	-0.52985	-0.56976	-0.36795
Kurtosis	2.49845	3.00613	2.41894	2.21958
Daily value at risk	-1.688%	-1.750%	-1.948%	-1.619%
Alpha	0.06445	0.05354	0.02158	0.00000
Beta	1.01485	1.04816	1.15631	1.00000
Information ratio	0.10935	0.09129	0.04655	-

Portfolio Cumulative Returns

Cumulative Returns: Portfolios

35

System Architecture of
AI Conversational Robo-Advisor

36

Cumulative Returns
Markowitz v.s. Black-litterment
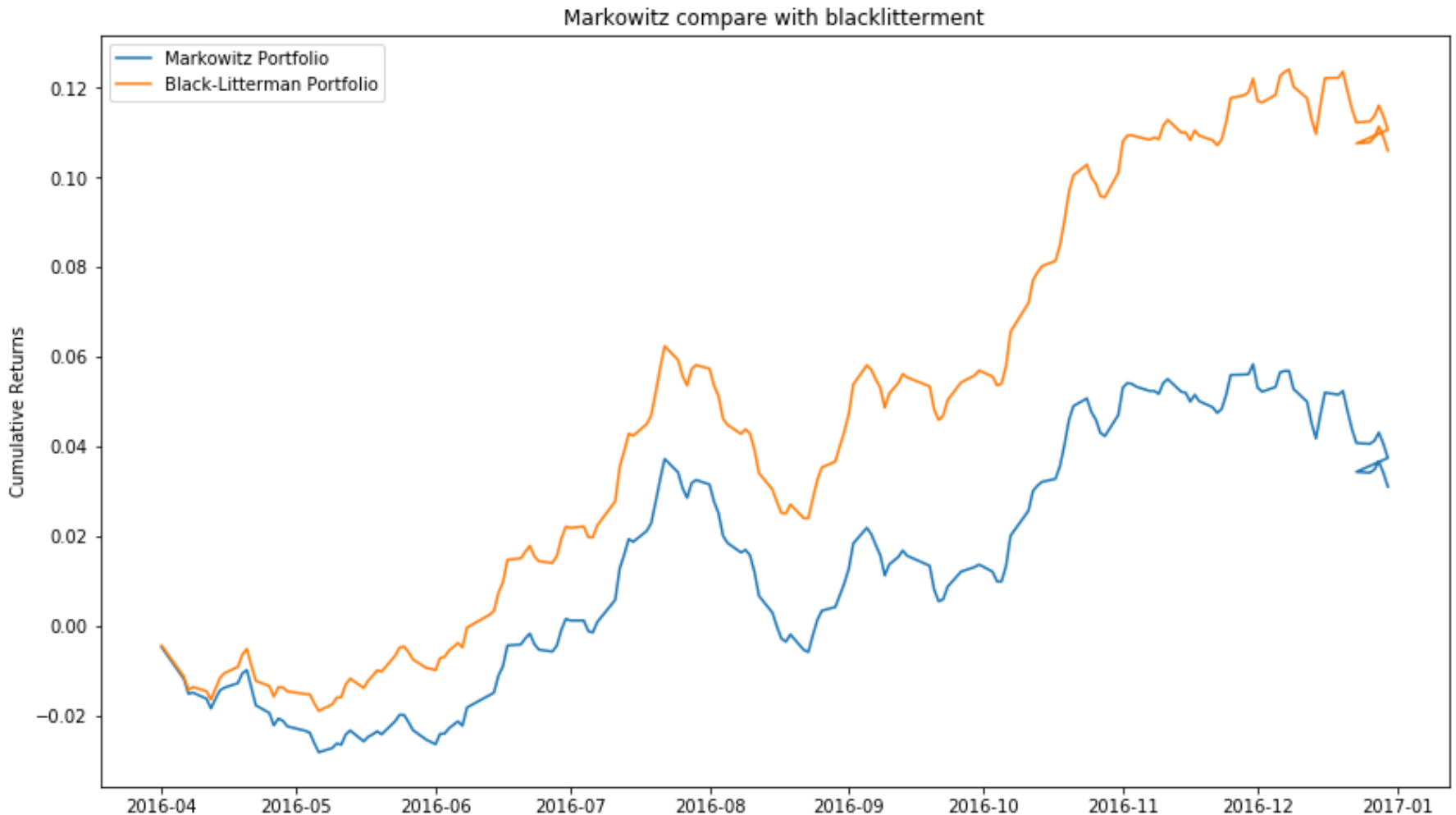
Markowitz compare with blacklitterment

Conversational Model
(LINE, FB Messenger)

38
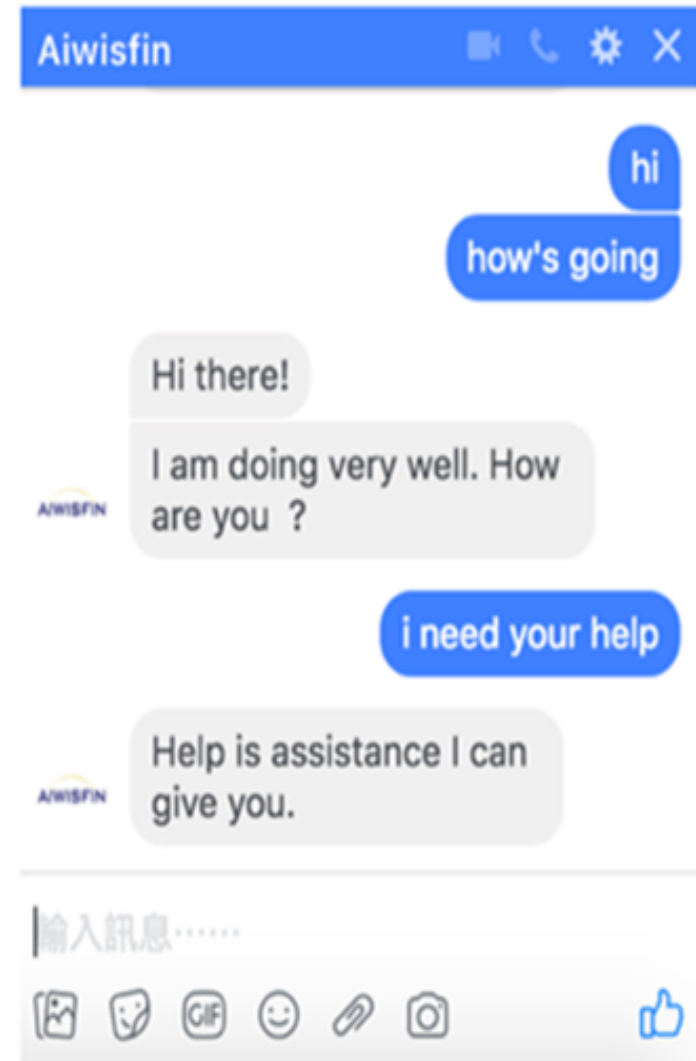
Conversational Robo-Advisor Multichannel UI/UX Robots

ALPHA 2

ZENBO

Conversational Commerce

# AI Chatbot for Conversational Commerce

Chatbots: Evolution of UI/UX

	mid - 80s	mid - 90s	mid - 00s	mid - 10s
Paradigm	PC	Web	Smartphone	Messaging
Platform Examples	Desktop DOS, Windows, Mac OS	Browser Mosaic, Explorer, Chrome	Mobile OS iOS, Android	Messaging Apps WhatsApp, Messenger, Slack
Applications Examples	Clients Excel, PPT, Lotus	Website Yahoo, Amazon	Apps Angry Birds, Instagram	Bots Weather, Travel
UI/UX	Native Screens	Web Pages	Native Mobile Screens	Message
S/w Dev	Client-side	Server-side	Client-side	Server-side

Chatbot

Dialogue System

Intelligent Agent

Chatbot

Dialogue System
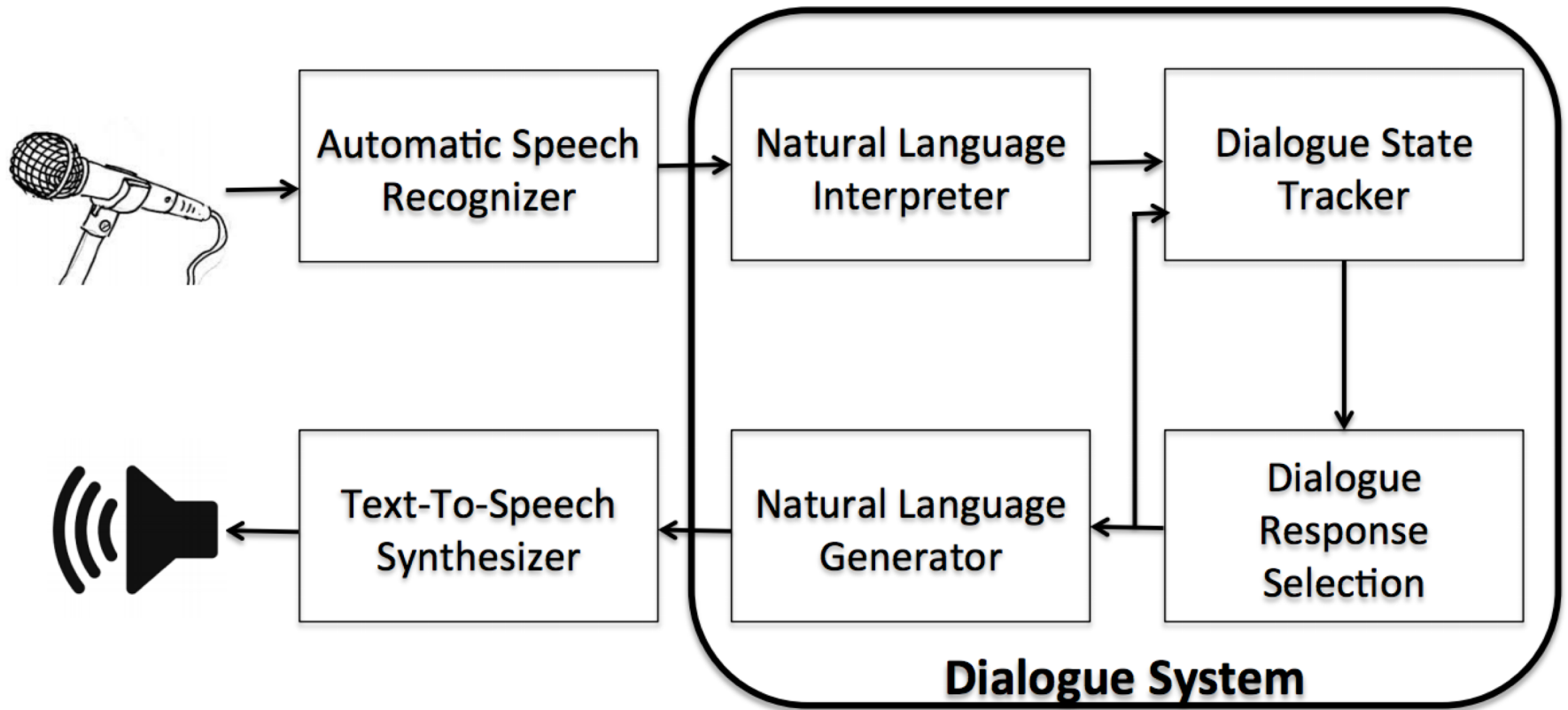
45

Can machines think?

(Alan Turing ,1950)

Chatbot

"online human-computer dialog system with natural language."
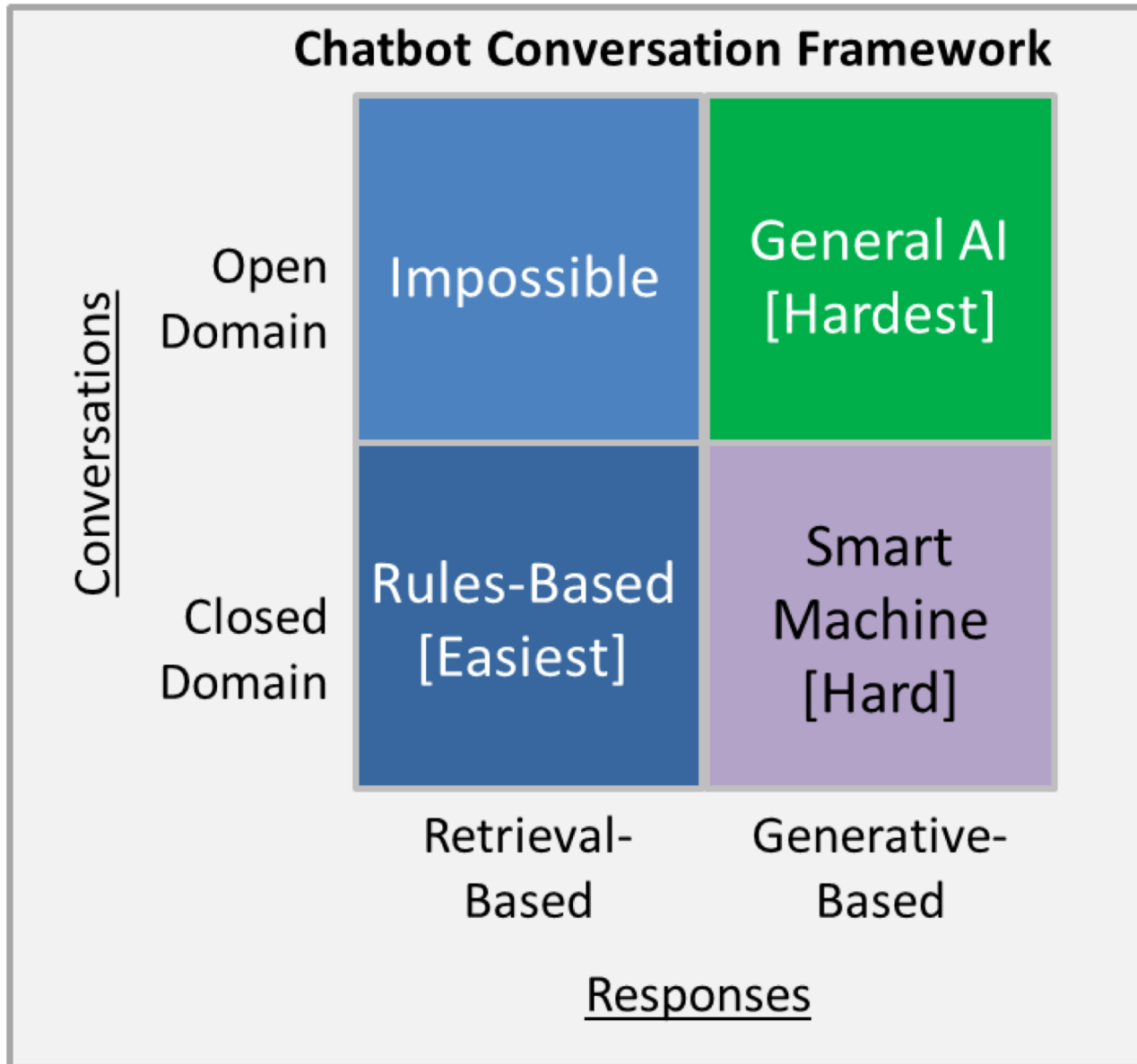
Source: Cahn, Jack. "CHATBOT: Architecture, Design, & Development."
PhD diss., University of Pennsylvania, 2017.

Chatbot Conversation Framework
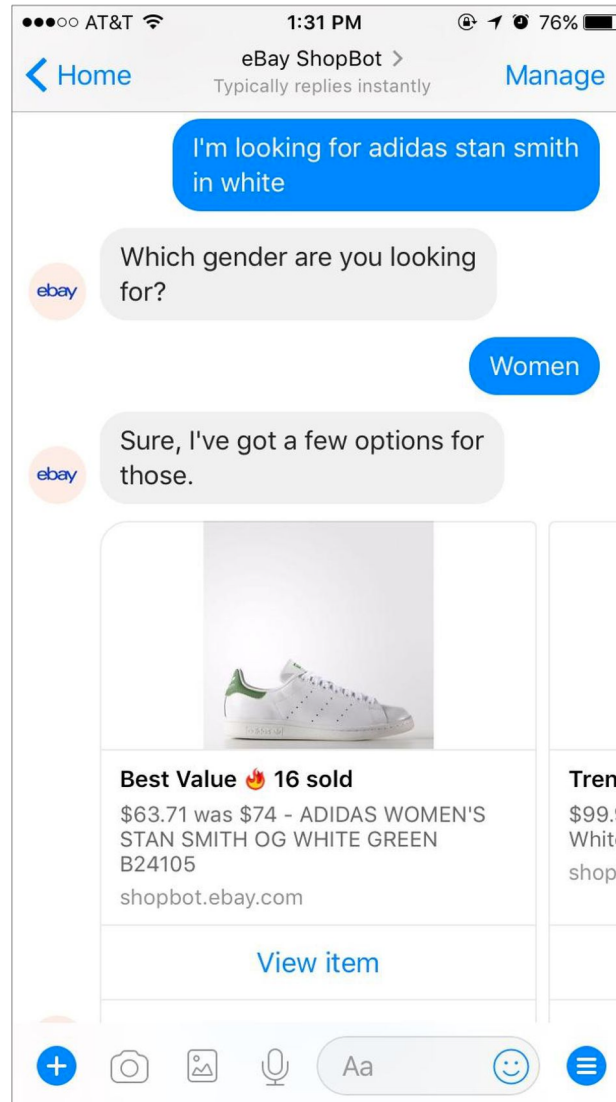

Chatbot Conversation Framework

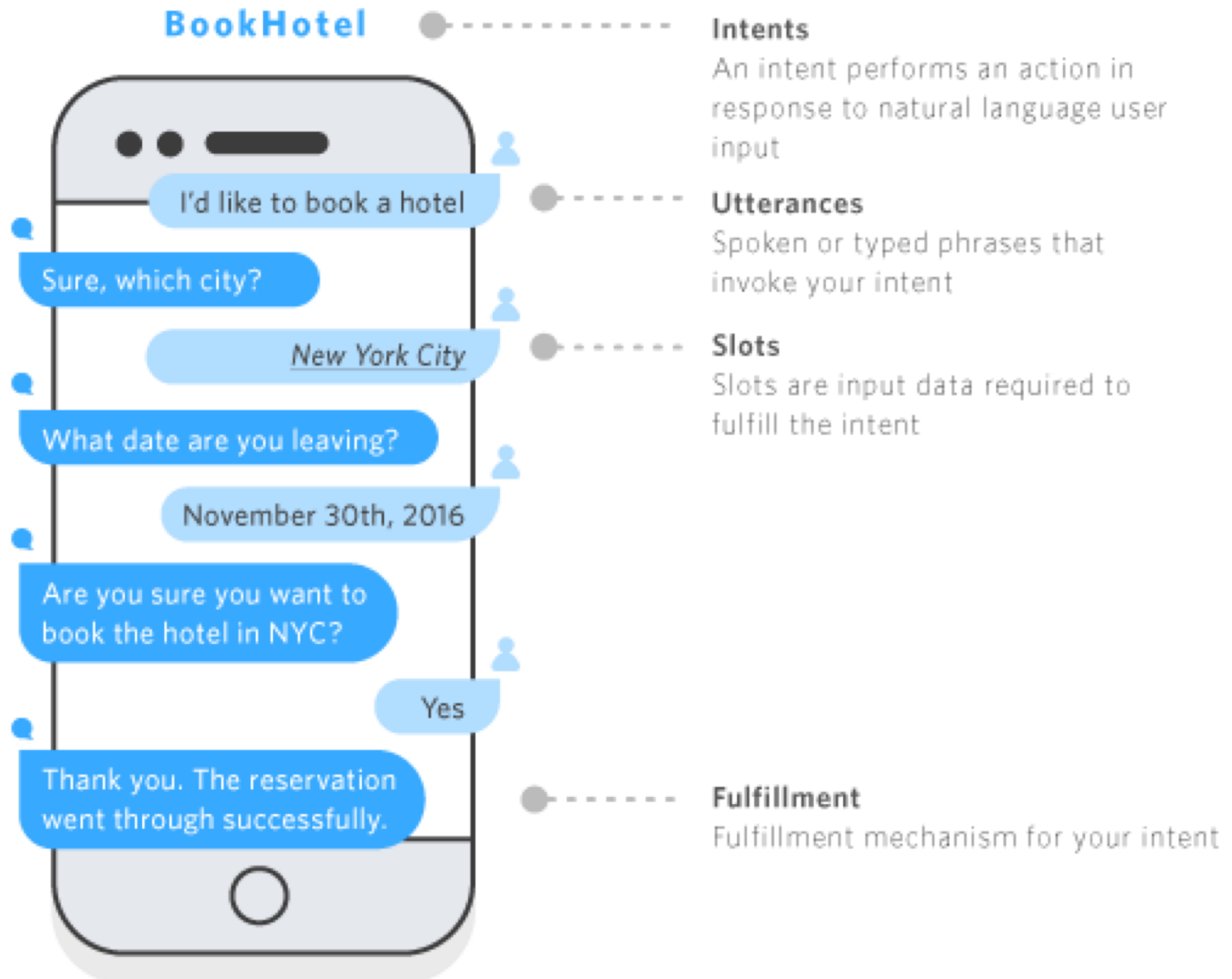|	Retrieval-Based	Generative-Based
Open Domain	Impossible	General AI [Hardest]
Closed Domain	Rules-Based [Easiest]	Smart Machine [Hard]

Conversations / Responses

From
E-Commerce
to
Conversational Commerce:
Chatbots
and
Virtual Assistants

Conversational Commerce: eBay AI Chatbots

Hotel Chatbot

BookHotel ● - - - - - - - - - - - - - - - **Intents**
An intent performs an action in
response to natural language user
input

I'd like to book a hotel ● - - - - - - - - - **Utterances**
Spoken or typed phrases that
invoke your intent

Sure, which city?

New York City ● - - - - - - - - **Slots**
Slots are input data required to
fulfill the intent

What date are you leaving?

November 30th, 2016

Are you sure you want to
book the hotel in NYC?

Yes

Thank you. The reservation
went through successfully. ● - - - - - - - **Fulfillment**
Fulfillment mechanism for your intent
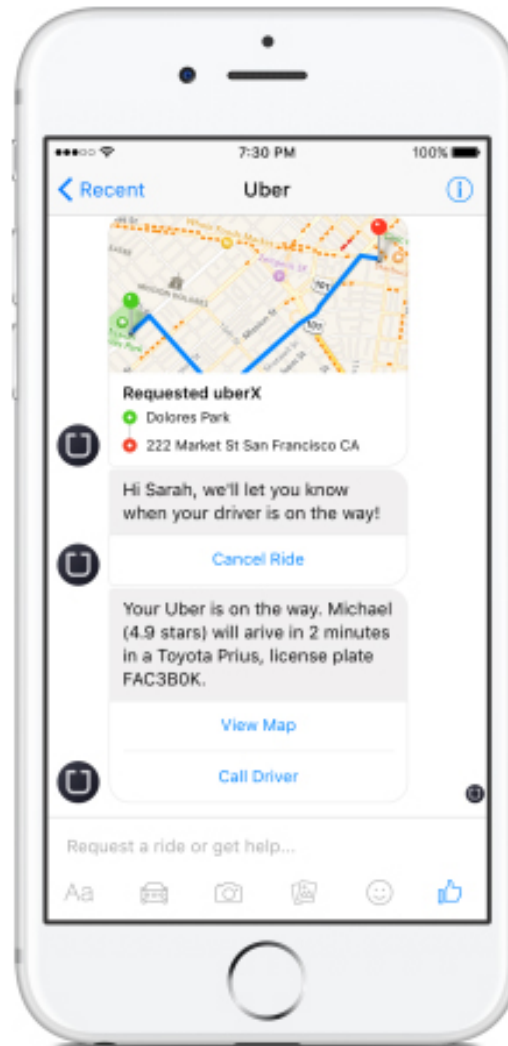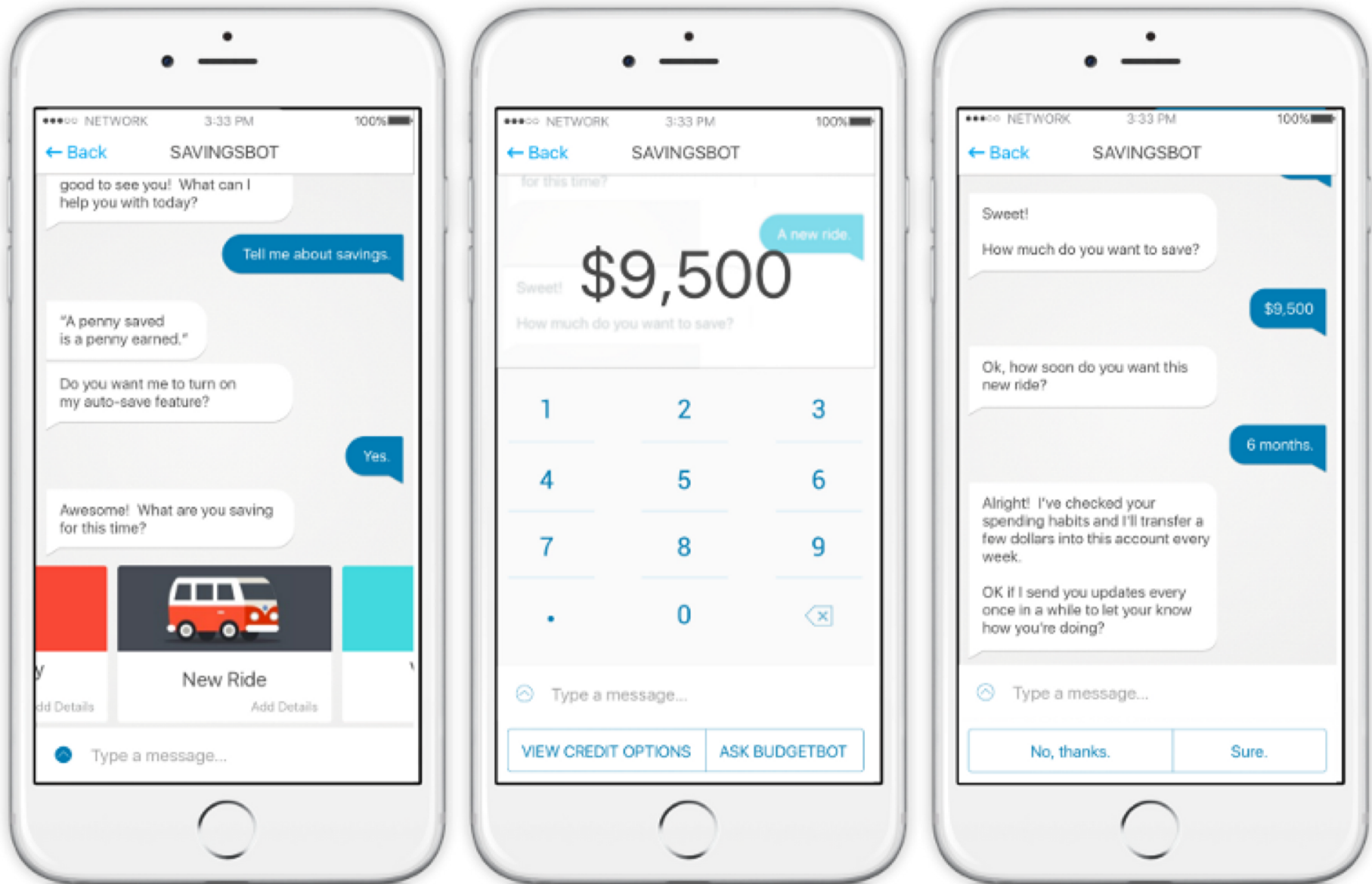
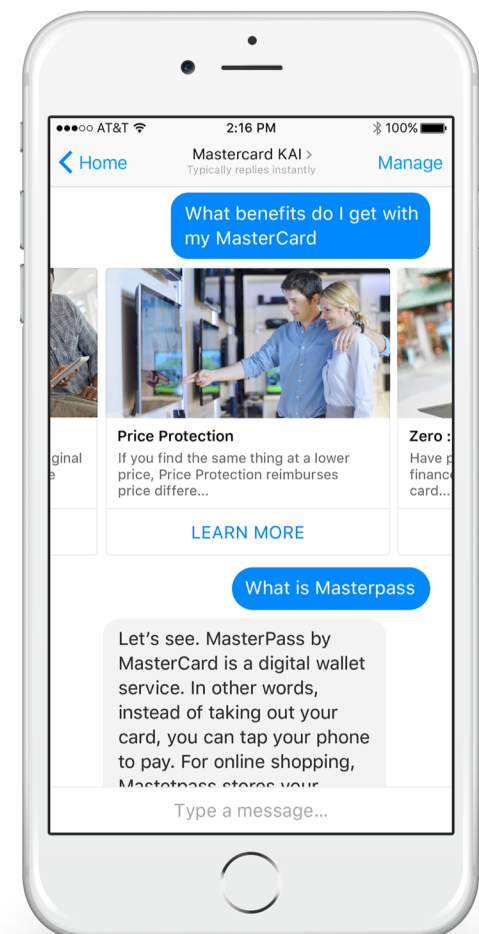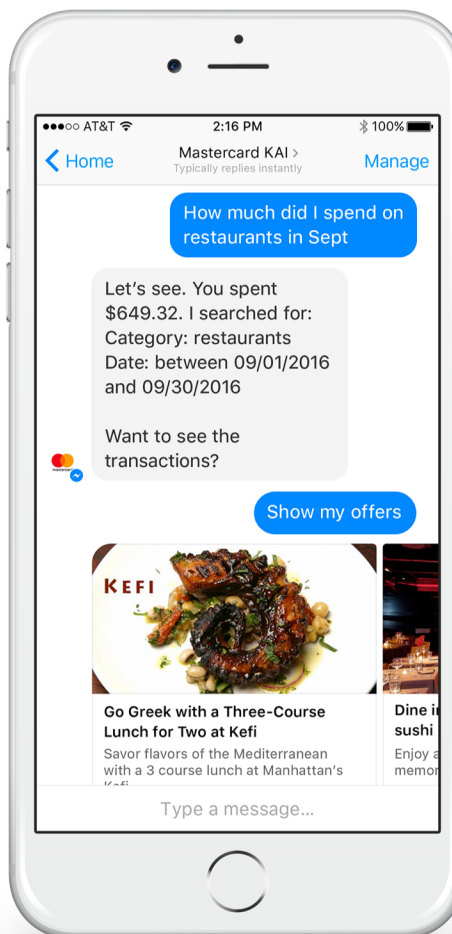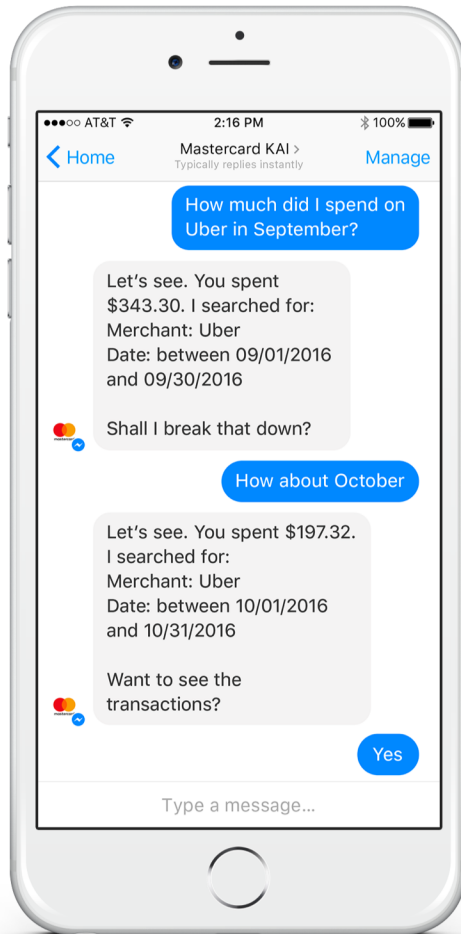# H&M's Chatbot on Kik

Uber's Chatbot on Facebook's Messenger

Uber's chatbot on Facebook's messenger
- one main benefit: it loads much faster than the Uber app

Savings Bot

Mastercard Makes Commerce More Conversational
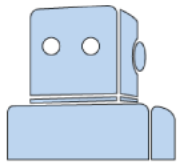

POWERED BY

Kasisto

Bot Platform Ecosystem

The bot platform ecosystem
and the emerging giants

Nearly every large software company has announced some sort of bot strategy in the last year. Here's a look at a handful of leading platforms that developers might use to send messages, interpret natural language, and deploy bots, with the emerging bot-ecosystem giants highlighted.

General AI agents with platforms
Developer access available now or announced

Siri	Now	Alexa/Echo	Cortana	Viv
Apple	Google	Amazon	Microsoft	Viv Labs

Messaging platforms

iMessage	Messenger	WhatsApp	Slack	WeChat	Kik
Apple	Facebook	Facebook		Tencent	

Allo	Telegram	Twilio	Line	Skype
Google			Naver	Microsoft

Bot frameworks and deployment platforms

Wit.ai
Facebook

BotKit
Howdy

Chatfuel

AUTOMAT

Automat

Bot Framework
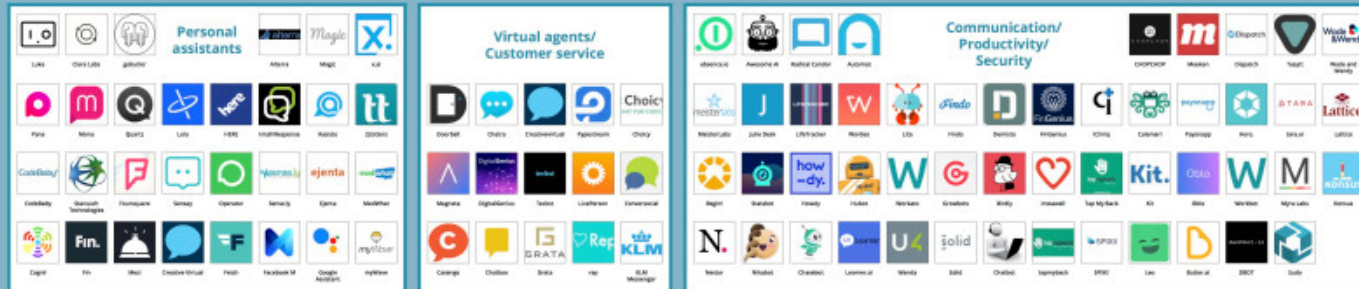Microsoft

Api.ai
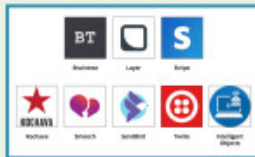Google

Pandorabots

MindMeld
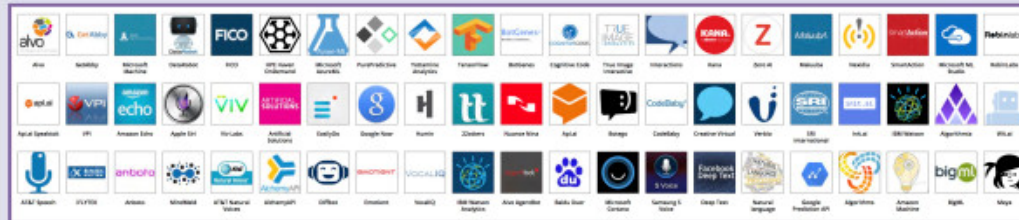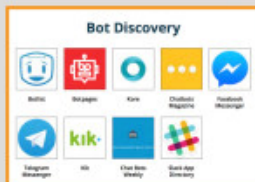
Gupshup

Sequel

Bots Landscape
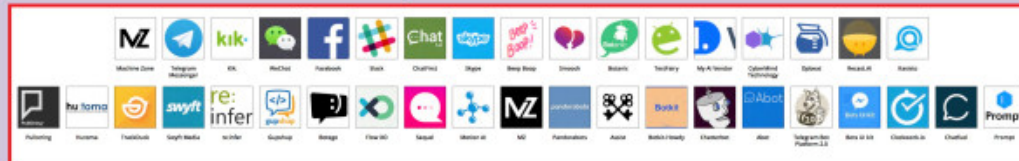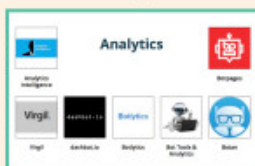
RECAST.AI **Messenger Bot Landscape**

Food

The Wine Pairer	Plum	Pescetarian Kitchen	Hungry	Foodie
Fitmeal	Entrée	Chatbook	Make My Sushi	Voome

Communication

Tangowork	Typeform	Anony	Tarjimly	Refugio	Rescue	Messenger Match
Sensay	LangLearnBot	Chat Club	Lingio Translate	Decodemoji	U-Report Global	Twiggo

Utilities

Poncho	Calcbot	Smokey	DotCom	Server Monsitoring
English Dictionary	Youtube Search	Idea Bot	QRobot	Instant Translator

Personal

M	Assist	Operator	Uber	Swelly	AskVoila
Ikea Build	Selectionnist	Bud Light Bot	Ask Gary Vee	Gidi	Visabot

Design

ColoretoBot	Connie Digital	AWWWARDS	Mr. Norman	Graphic Design	SnapBot

Analytics

SISENSE	Stockflare	PageInsights	DAM	BuzzLogger	Trading Bot

News

CNN	TIA	Digg	WSJ	Reddit Bot	Al Jazeera
Hacker News	Wired	The Guardian	France Info	Chatbots Mag	VentureBeat

Travel

Grindbase	KLM	British Airways	Space Explorer	AustrianAirlines
SnapTravel	Skyscanner	Kayak	Ticketbot	Rapido

Entertainment

Spotify	Kim Kardashian	La Bringue	50 Cent	L'oquillo Fiel	Lindsay Lohan	Maroon 5
MTV News	Axwell Λ Ingrosso	RedBull TV	SantaBot	Star Wars Bot	Citron	Pokébot

Developer Tools

HackerOne	Wiredelta
Robbie	Zilly

Education

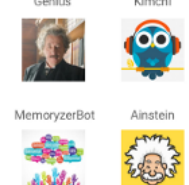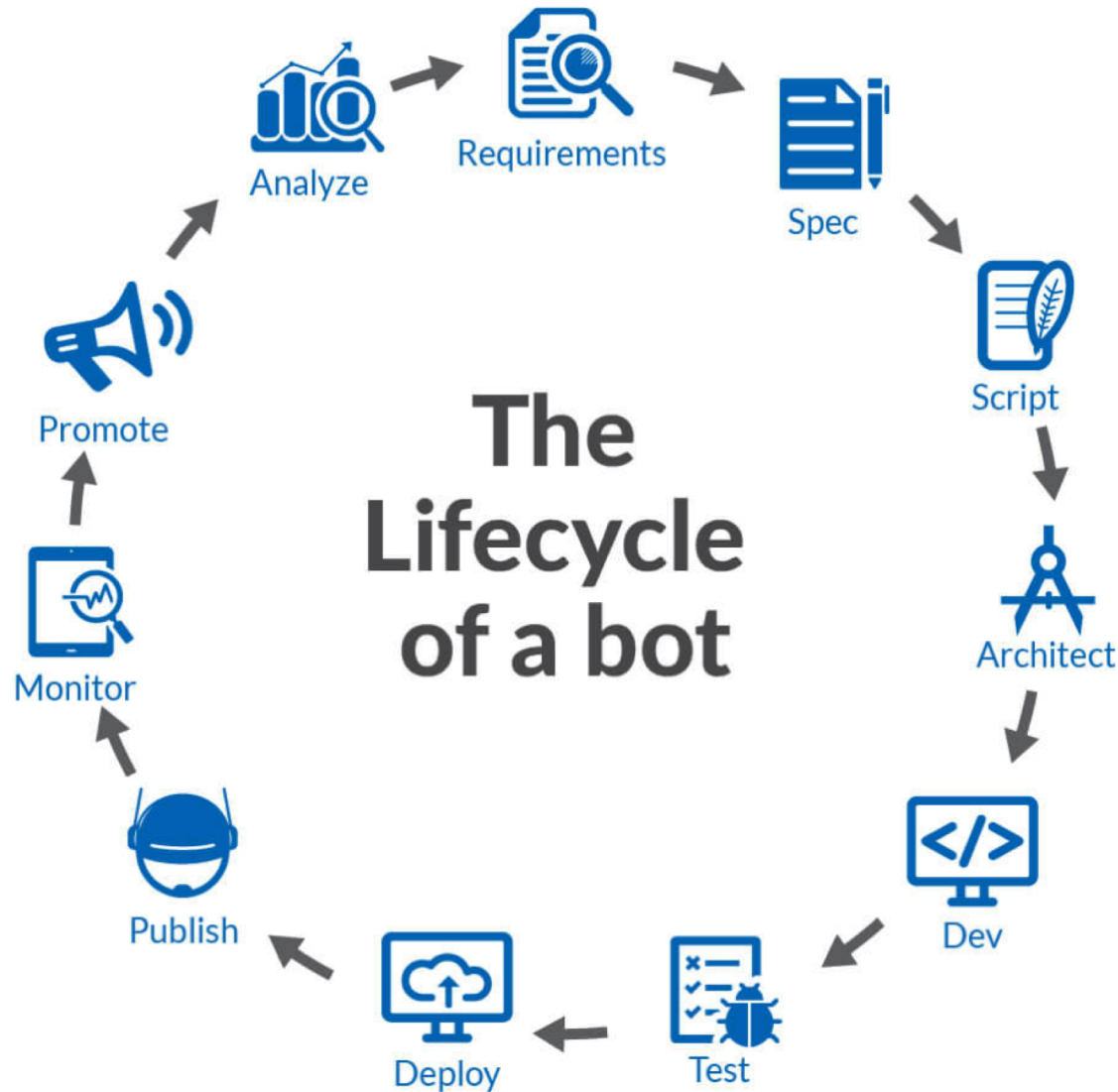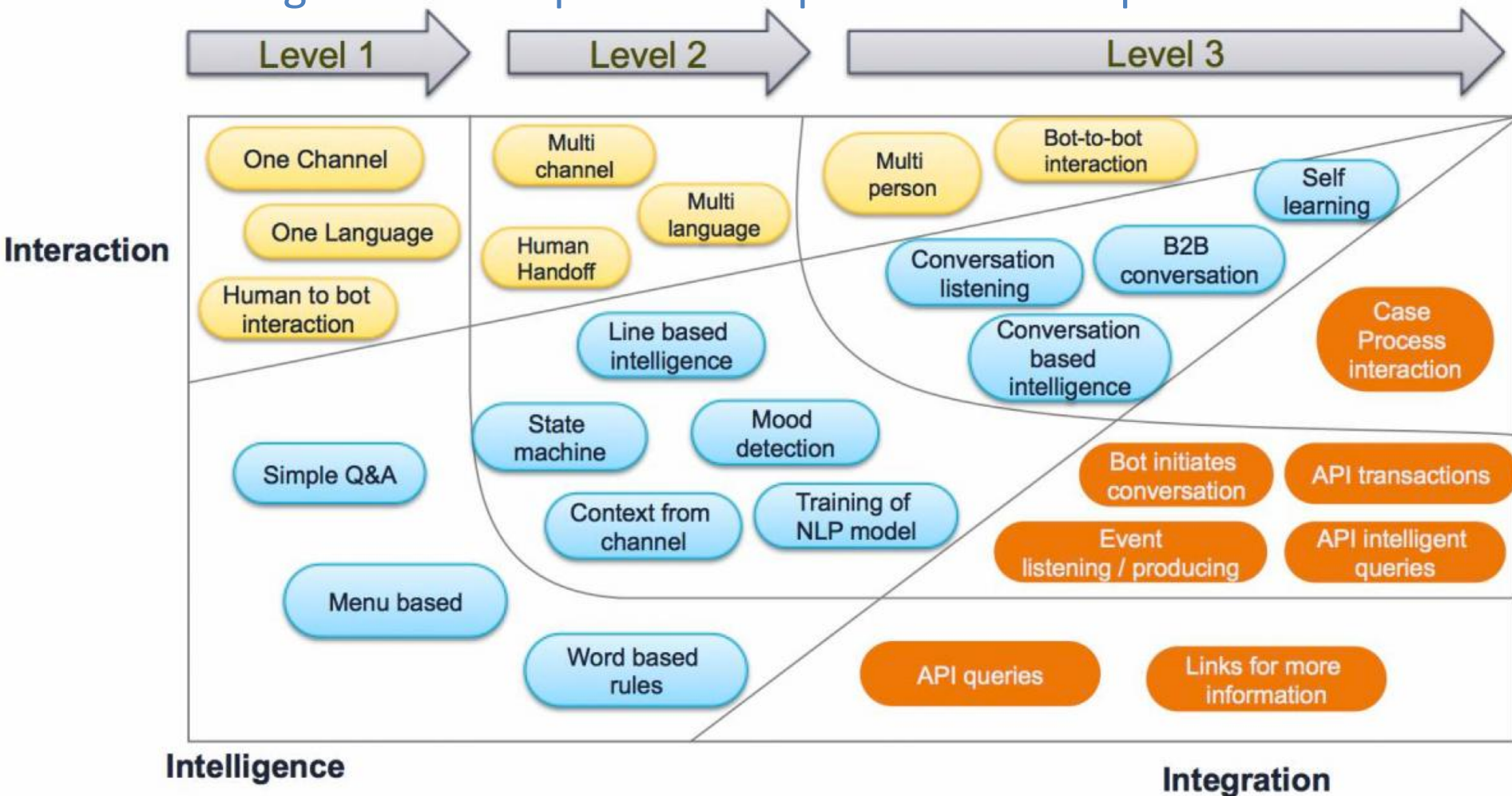|	
Genius	Kimchi
MemoryzerBot	Ainstein

The Bot Lifecycle

Chatbots
Bot Maturity Model

Customers want to have simpler means to interact with businesses and get faster response to a question or complaint.

Source: https://www.capgemini.com/2017/04/how-can-chatbots-meet-expectations-introducing-the-bot-maturity/
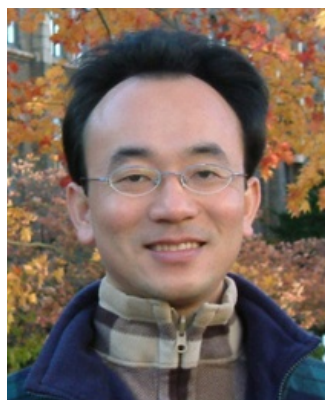
Question Answering (QA)

IMTKU
Question Answering System for
World History Exams at NTCIR-13 QALab-3

2011

IMTKU Textual Entailment System for Recognizing Inference in Text at NTCIR-9 RITE

Department of Information Management
Tamkang University, Taiwan

Min-Yuh Day

Chun Tu

myday@mail.tku.edu.tw

NTCIR-9 Workshop, December 6-9, 2011, Tokyo, Japan

2013

IMTKU Textual Entailment System for Recognizing Inference in Text at **NTCIR-10** RITE-2

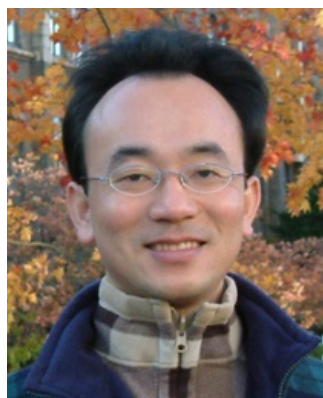## Department of Information Management
Tamkang University, Taiwan

Min-Yuh Day   **Chun Tu**   **Hou-Cheng Vong**   **Shih-Wei Wu**   **Shih-Jhen Huang**
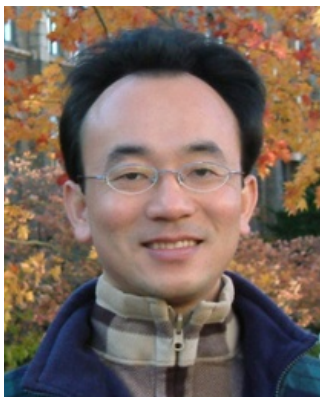
myday@mail.tku.edu.tw

IMTKU Textual Entailment System for Recognizing Inference in Text at NTCIR-11 RITE-VAL

2014

Tamkang University

淡江大學

Min-Yuh Day

Ya-Jung Wang

Che-Wei Hsu

En-Chun Tu

Huai-Wen Hsu
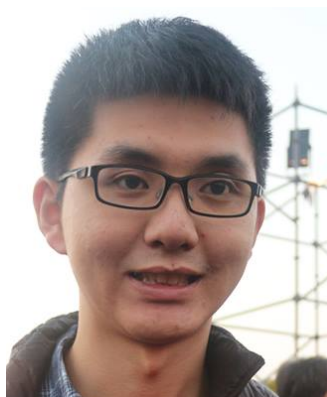
Yu-An Lin
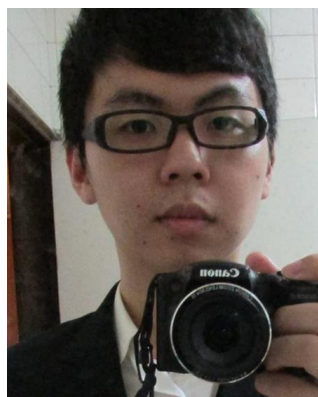
Shang-Yu Wu

Yu-Hsuan Tai

Cheng-Chia Tsai

2016

Tamkang University
淡江大學

IMTKU Question Answering System for World History Exams at NTCIR-12 QA Lab2

Department of Information Management
Tamkang University, Taiwan

Sagacity Technology

Min-Yuh Day   Cheng-Chia Tsai   Wei-Chun Chung   Hsiu-Yuan Chang   Tzu-Jui Sun   Yuan-Jie Tsai   Jin-Kun Lin   Cheng-Hung Lee
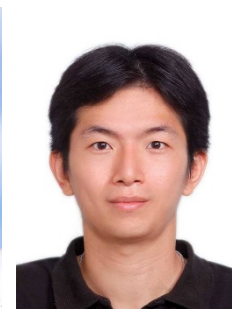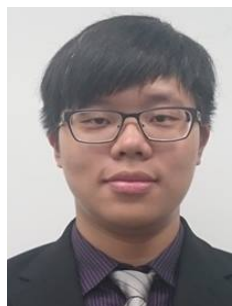
Yu-Ming Guo   Yue-Da Lin   Wei-Ming Chen   Yun-Da Tsai   Cheng-Jhih Han   Yi-Jing Lin   Yi-Heng Chiang   Ching-Yuan Chien

myday@mail.tku.edu.tw

2017

Tamkang University
淡江大學

IMTKU Question Answering System for World History Exams at NTCIR-13 QALab-3

Department of Information Management
Tamkang University, Taiwan
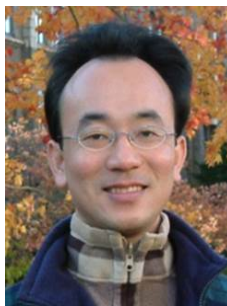
Min-Yuh Day   Chao-Yu Chen

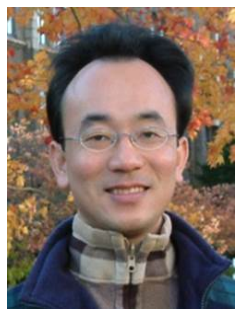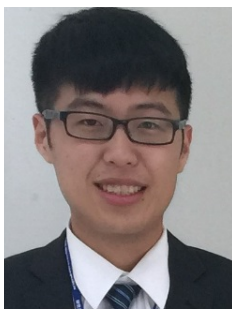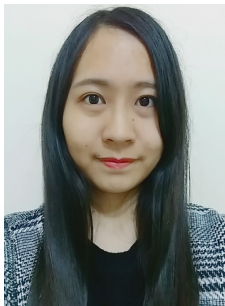**Wanchu Huang**   **Shi-Ya Zheng**   **I-Hsuan Huang**   **Tz-Rung Chen**   **Min-Chun Kuo**   **Yue-Da Lin**   **Yi-Jing Lin**

myday@mail.tku.edu.tw

NTCIR-13 Conference, December 5-8, 2017, Tokyo, Japan

IMTKU System Architecture for NTCIR-13 QALab-3

Question
(XML)

Complex Essay

Simple Essay

True-or-False

Factoid

Slot-Filling

Unique

Question Analysis

JA&EN Translator

Stanford CoreNLP

Document Retrieval

Wikipedia

Answer Extraction

Answer Generation

Word Embedding
Wiki Word2Vec
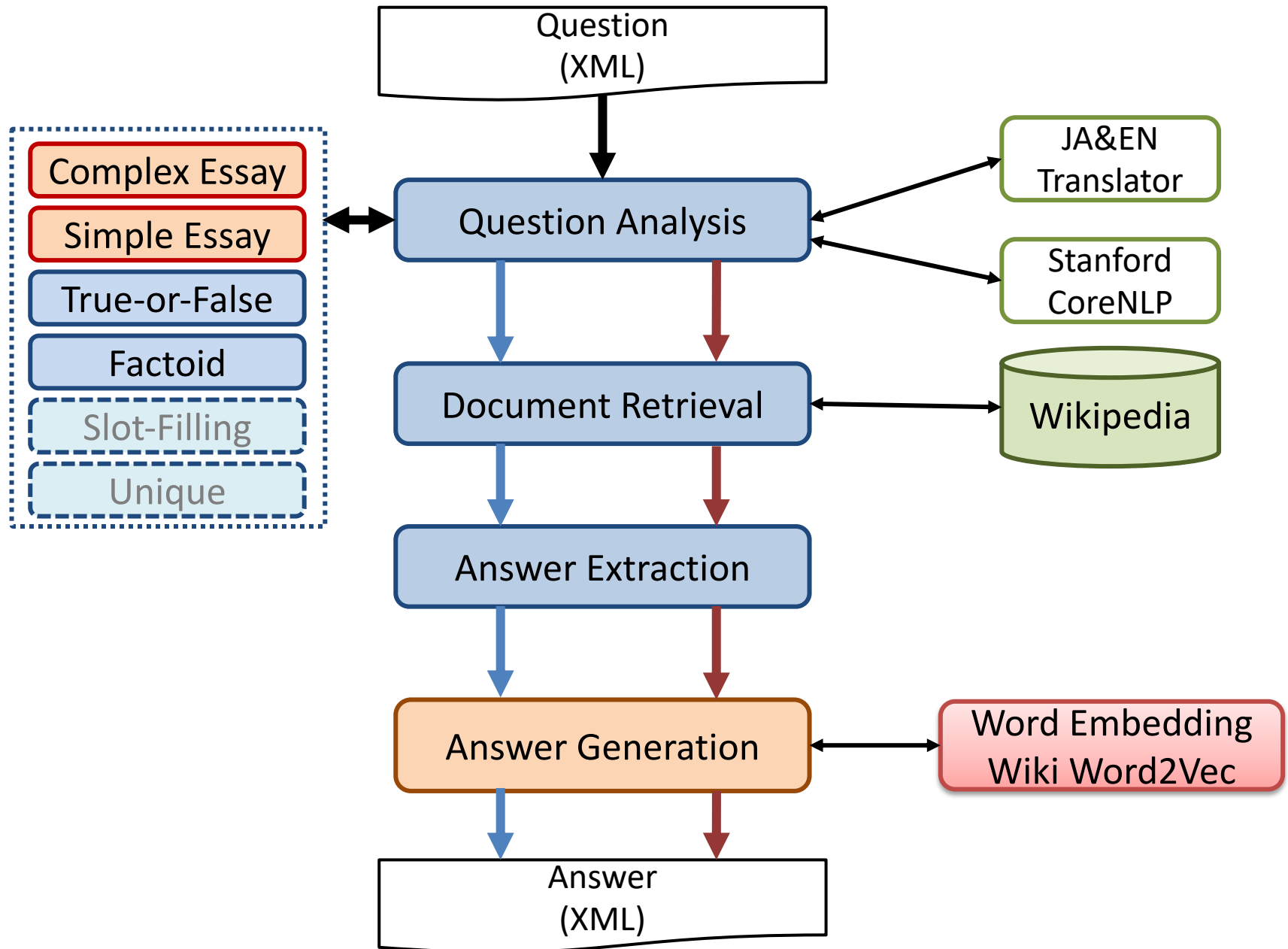
Answer
(XML)

System Architecture of
Intelligent Dialogue and Question Answering System

User Question Input

RNN LSTM GRU

Dialogue Intention Detection

Question Analysis

Deep Learning TensorFlow

Python NLTK

AIML KB

AIML Dialogue Engine

Document Retrieval

Dialogue KB

IR

Cloud Resource

Real Time Dialogue API

Answer Extraction

System Response Generator

Answer Generation

Answer Validation

Deep Learning

Answer
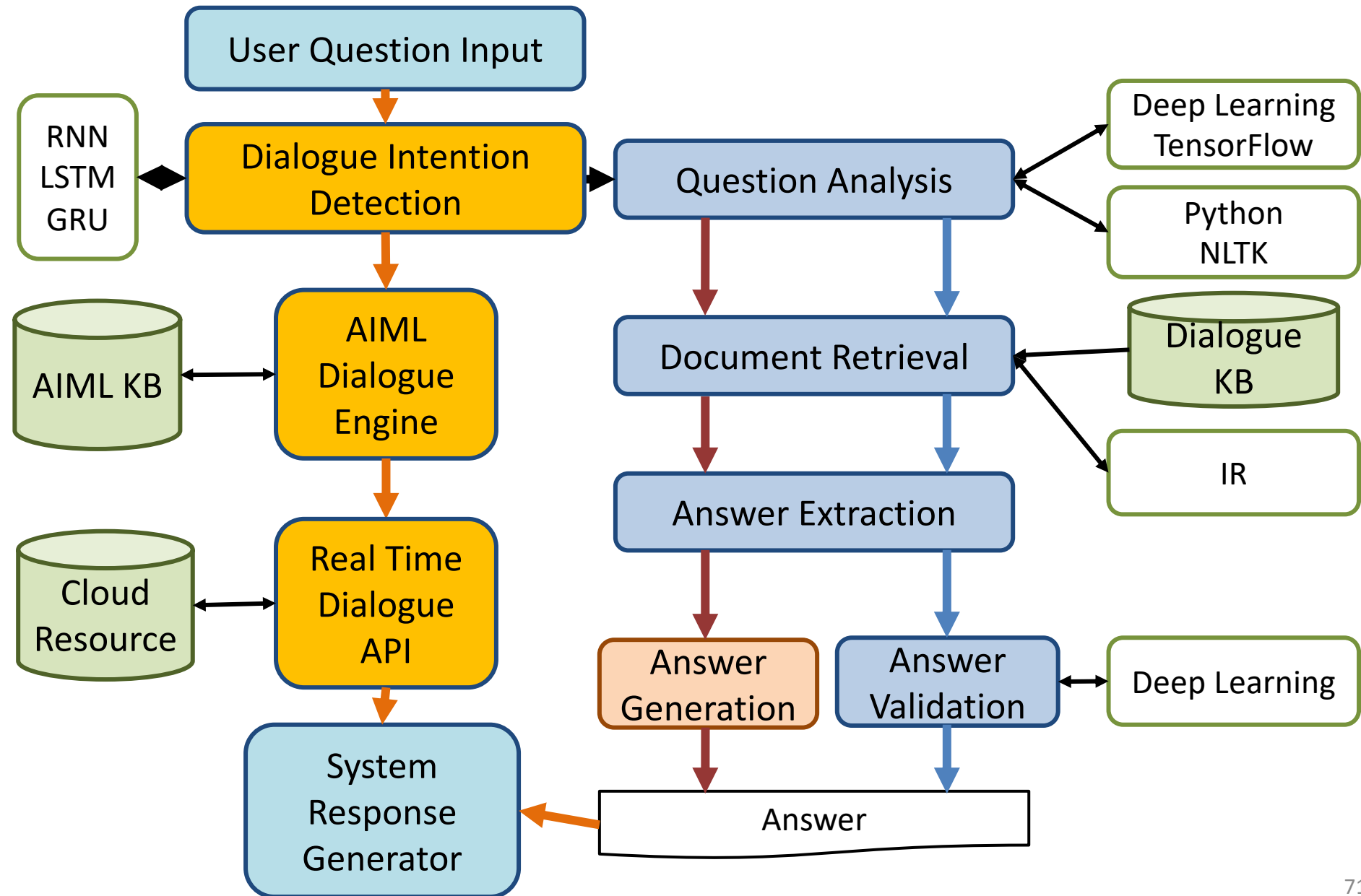
AI Dialogue System

Chatbot

Can machines think?

(Alan Turing ,1950)

Chatbot

"online **human-computer** dialog system with natural language."

Source: Cahn, Jack. "CHATBOT: Architecture, Design, & Development."
PhD diss., University of Pennsylvania, 2017.

Chatbot Conversation Framework

Chatbot Conversation Framework

	Retrieval-Based	Generative-Based
Open Domain	Impossible	General AI [Hardest]
Closed Domain	Rules-Based [Easiest]	Smart Machine [Hard]

Conversations

Responses
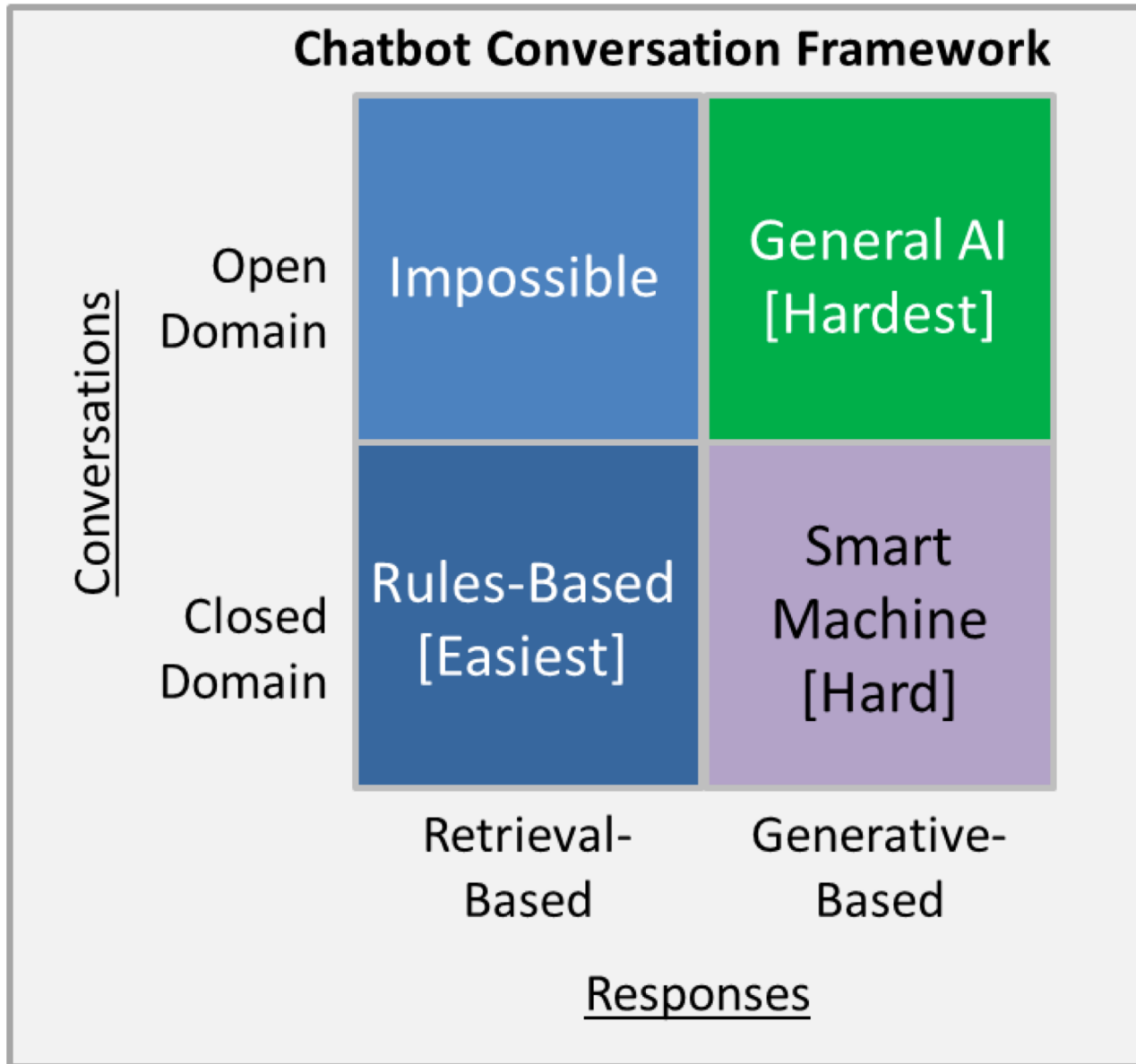
Dialogue System
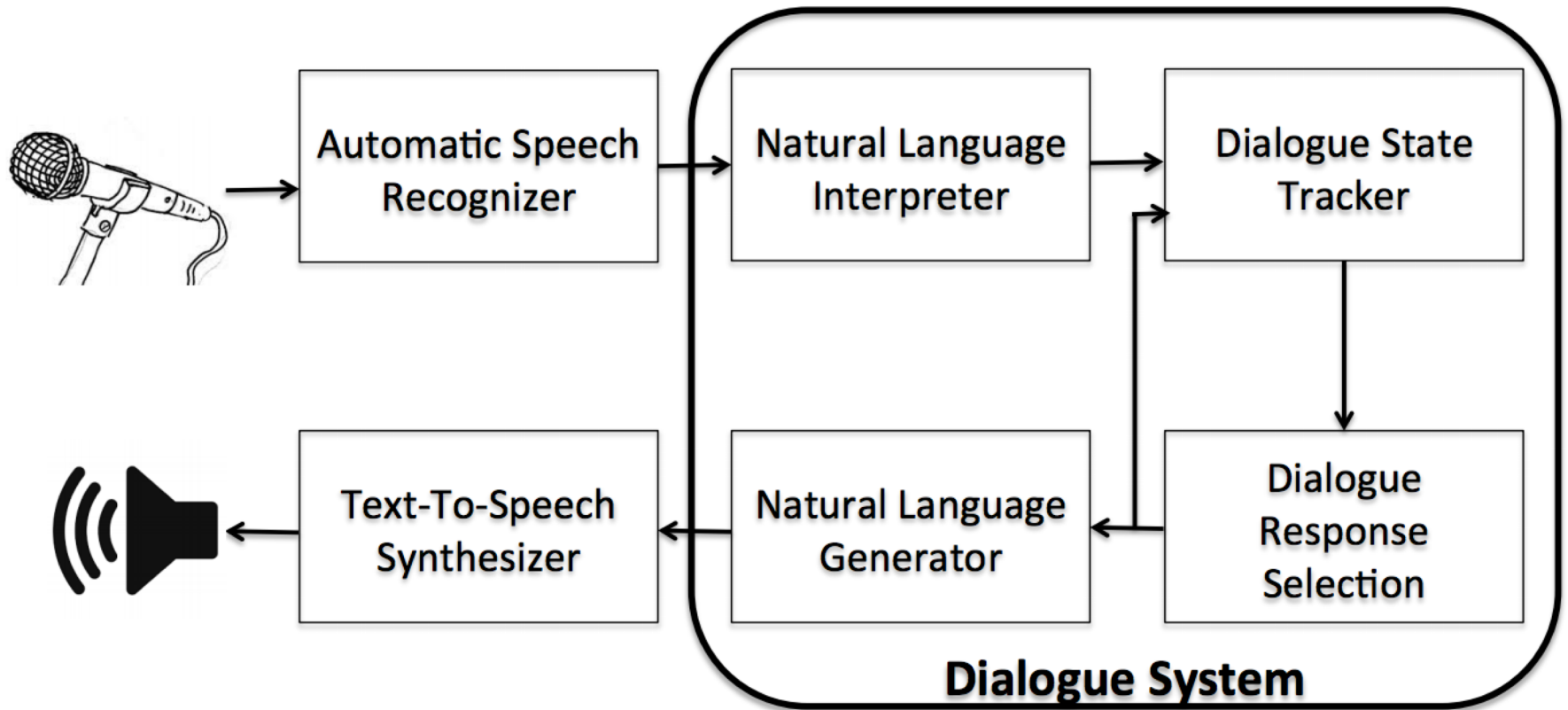
Short Text Conversation Task (STC-3)
Chinese Emotional Conversation Generation (CECG) Subtask

NTCIR Short Text Conversation STC-1, STC-2, STC-3

	Japanese	Chinese	English	
NTCIR-12 STC-1 *22 active participants*	Twitter, Retrieval	Weibo, Retrieval		Single-turn, Non task-oriented
NTCIR-13 STC-2 *27 active participants*	Yahoo! News, Retrieval+ Generation	Weibo, Retrieval+ Generation		
NTCIR-14 STC-3		Weibo, Generation for given emotion categories		Multi-turn, task-oriented (helpdesk)
		Weibo+English translations, distribution estimation for subjective annotations		

Chinese Emotional Conversation Generation (CECG) subtask

Dialogue Quality (DQ) and Nugget Detection (ND) subtasks

The 14th NTCIR (2018 - 2019)

NTCIR (**N**II **T**estbeds and **C**ommunity for **I**nformation access **R**esearch) Project

NTCIR

▸Japanese

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NTCIR-14

NTCIR 14 ▸

NTCIR-14 Conference

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NTCIR-14 Aims

Call for Task Proposals

How to Participate

Task Participation 🔲

Task Overview/Call for Task Participation

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Organization

Important Dates

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NTCIR 13 ▸

NTCIR 12 ▸

The 14th NTCIR (2018 - 2019)
Evaluation of Information Access Technologies

January 2018 - June 2019

What's New

🆕 February 1, 2018: Call for participation to the NTCIR-14 Kick-Off Event released.
🆕 February 1, 2018: Call for participation to the NTCIR-14 QALab-PoliInfo Kick-Off Event released.

December 5, 2017: The NTCIR-14 Task Selection Committee has selected the following six Tasks.
Lifelig-3, OpenLiveQ-2, QA Lab-4, STC-3, WWW-2, CENTRE.

August 23, 2017: NTCIR-14 Call for Task Proposals released.(Closed.)

🆕About Proceedings

After the NTCIR-14 conference, a post-proceedings of rivised selected papers will be published in the Springer Lecture Notes on Computer Science (LNCS) series.

Lecture Notes in Computer Science

http://research.nii.ac.jp/ntcir/ntcir-14/index.html

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NTCIR-14 STC-3

Short Text Conversation Task (STC-3)
Chinese Emotional Conversation Generation (CECG) Subtask

NTCĪR

Short Text Conversation Task (STC-3)

Chinese Emotional Conversation Generation (CECG) Subtask

Home

Task Definition

Dataset Description

Evaluation Metric

Time Schedule

Copy Rights & Contacts

Call for Participation

In recent years, there has been a rising tendency in AI research to enhance Human-Computer Interaction by humanizing machines. However, to create a robot capable of acting and talking with a user at the human level requires the robot to understand human cognitive behaviors, while one of the most important human behaviors is expressing and understanding emotions and affects. As a vital part of human intelligence, emotional intelligence is defined as the ability to perceive, integrate, understand, and regulate emotions. Though a variety of models have been proposed for conversation generation from large-scale social data, it is still quite challenging (and yet to be addressed) to generate emotional responses.

In this challenge, participants are expected to generate Chinese responses that are not only appropriate in content but also adequate in emotion, which is quite important for building an empathic chatting machine. For instance, if user says "My cat died yesterday", the most appropriate response may be "It's so sad, so sorry to hear that" to express sadness, but also could be "Bad things always happen, I hope you will be happy soon"to express comfort.

Previous Evaluation Challenge at NLPCC 2017

Overview of the NLPCC 2017 Shared Task: Emotion Generation Challenge

Links

NTCĪR **NTCIR-14**

STC-3 **NTCIR-14 STC-3**

NLPCC **NLPCC 2017**

AI lab. of Computer Science, Tsinghua University, Beijing 100084, China.

http://www.aihuang.org/p/challenge.html

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Short Text Conversation (NTCIR-13 STC2) Retrieval-based

retrieval-based method

Given a new post, can a coherent and useful comment be returned by searching a post-comment repository?

Search and reuse

post-comment repository
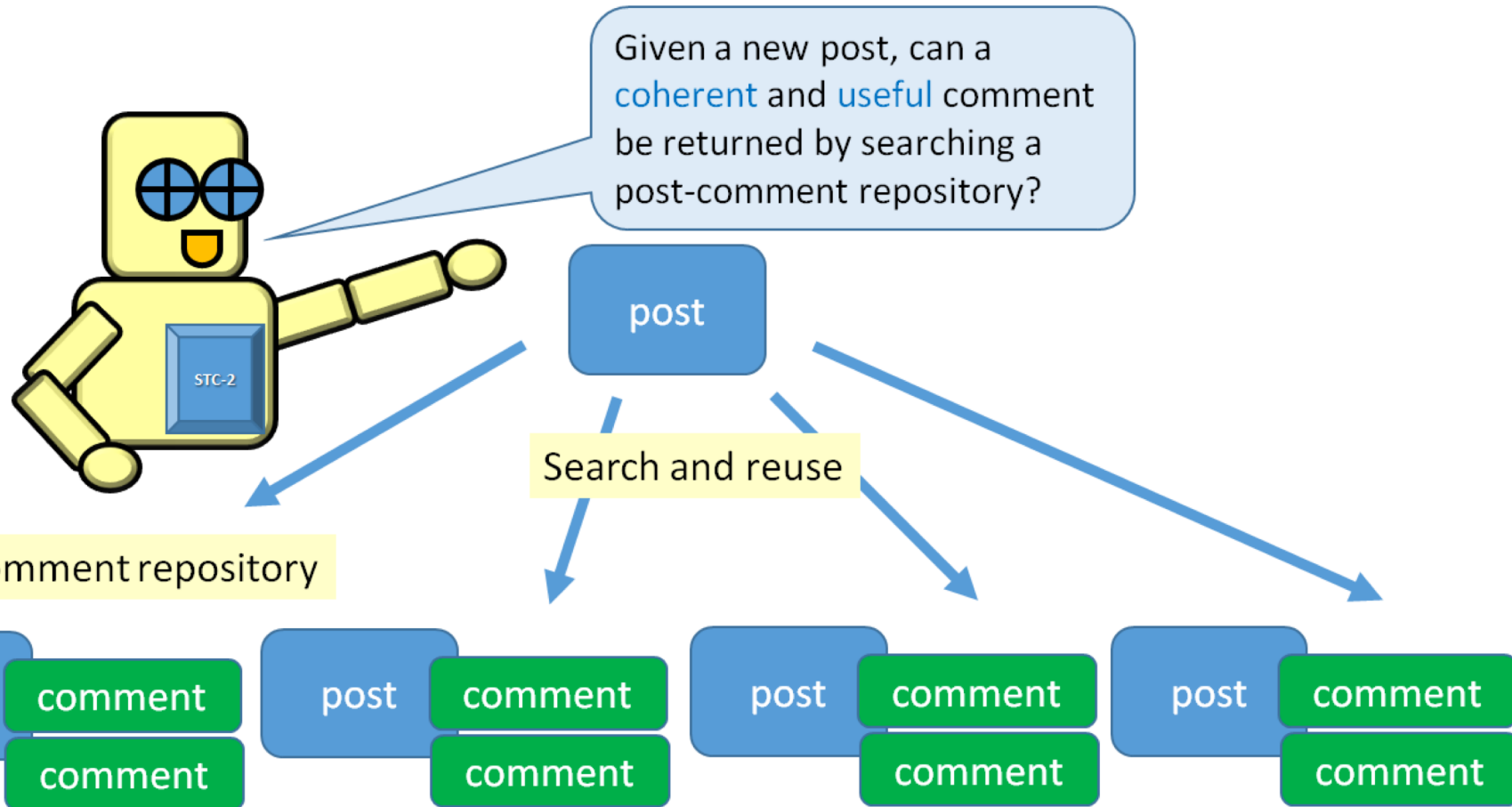
Short Text Conversation (NTCIR-13 STC2) Generation-based

generation-based method

Given a new post, can a fluent, coherent and useful comment be generated?

The Trained Generator

post → Understanding → Generating → generated comment / generated comment / generated comment

Used to train the generator

post-comment repository

| post | comment | post | comment | post | comment | post | comment |
| comment | | comment | | comment | | comment | |
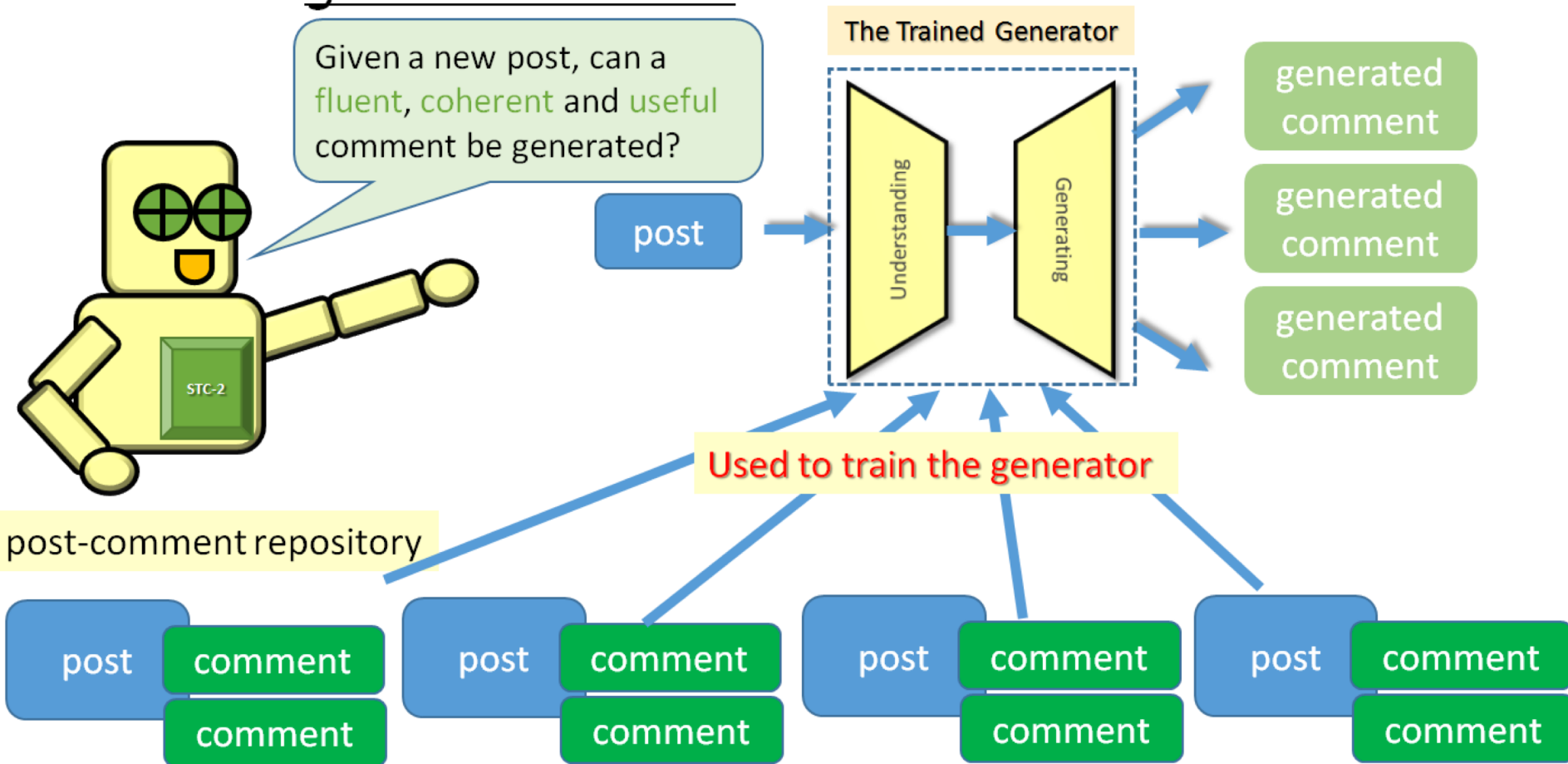
Given post:

爱狗还会做饭的男人，最帅了！

The man who cooks and loves dogs is very handsome!

Response	Chinese / Translated English	Emotion Class	Coherence and Fluency	Emotion Consistency	Label
Response 1	会做饭的男人是很帅的啊。 The man who cooks is handsome.	喜欢 Like	Yes	Yes	2
Response 2	哈哈，我也觉得。 Haha, I feel the same way.	喜欢 Like	Yes	No	1
Response 3	这是哪部电影里的？ Which movie is this from?	厌恶 Disgust	No	Yes	0
Response 4	哈哈,你也是。 Haha, the same to you.	喜欢 Like	No	No	0
Response 5	我爱你会。 I love you, will you.	厌恶 Disgust	No	Yes	0
Response 6	这是同主义同的道！ This is the same way of the same doctrine!	厌恶 Disgust	No	No	0

NLPCC
Emotion Classification Challenge
6 classes (64%)

- 0: Other

- 1: Like

- 2: Sadness

- 3: Disgust

- 4: Anger

- 5: Happiness

Chinese Emotional Conversation Generation (CECG)

Post (Given)	Emotion Category (Given)	Response (to be generated)
爱狗还会做饭的男人，最帅了！ The man who cooks and loves dogs is very handsome!	喜欢 Like	会做饭的男人是很帅的啊。 The man who cooks is handsome.
爸爸，明天是六一啦，带我出去玩吧！ Daddy, tomorrow is June 1th Children's Day. Please take me out to play!	喜欢 Like	好，一定带。 Yes, of course.
被特别在乎的人忽略，会很难过，而装做不在乎，会更难过。 It's sad to be ignored by someone that you really care, and it's harder to pretend that you don't care.	悲伤 Sadness	因为在乎，所以在乎。 I am concerned with it, because I care about it.
冰天雪地的哈尔滨！你要冻死我咋地？！？！ Harbin is in the snow! Are you going to freeze me to death?!?!	喜欢 Like	注意保暖，小心别感冒! Keep warm. Watch out for getting cold!
本来想学一把沧桑，结果令我更忧伤。 I wanted to learn the vicissitudes of life, but I became sadder.	悲伤 Sadness	这是一个悲伤的故事。 It a sad story.
今天一整天都在海边训练。虽然很累，但还是很开心的！ I have been training at the seaside all day. Though very tired, I still very happy!	快乐 Happiness	是的呢，开心！ Yeah, happy!

Sample responses generated by Seq2Seq and ECM (Emotional Chatting Machine)

Post	Model		Response(Original)	Response(Translated)
承诺，就是一个骗子说给一个傻子听的。 A promise is what a cheater says to a fool.	Seq2Seq		承诺，就是一个骗子说给一个傻子听的。	A promise is what a cheater says to a fool.
	ECM	Like	承诺是一个专一的傻子	Promise is a single-minded fool
		Happy	我就是一个开心的傻子	I'm just a happy fool
		Sad	我就是一个悲伤的傻子	I am a sad fool
		Disgust	一个骗子说给一个傻子听	A cheater says to a fool
		Angry	不管你信不信，反正我信了！	Whatever you believe or not, I trust in it!
知道真相的我眼泪笑下来 Knowing the truth, I laughed myself to tears	Seq2Seq		知道真相的我眼泪掉下来。	After knowing the truth, I burst into tears.
	ECM	Like	太可爱了，太可爱了！	Too lovely, it's too lovely.
		Happy	笑得我眼泪都出来了。	I can't help laugh myself to tears.
		Sad	知道真相的我眼泪掉下来。	After knowing the truth, I burst into tears.
		Disgust	这是真的还是假的？	Is this true?
		Angry	什么意思？没看懂。	What do you mean? I don't understand.

Case Study in Taiwan

Yuanta ETF Advisor
Yuanta ETF-AI

https://www.yuanta-etfadvisor.com/

E.SUN BANK
i-Instant Wealth Caculation

Alpha Robo-Advisor

Summary

- **AI Robo-Advisor**

- **Conversational Commerce**

- **Case Study in Taiwan**

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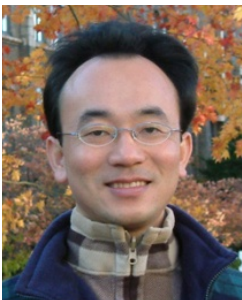
Q & A

AI Robo-Advisor and Conversational Commerce

Seminar for Advanced Business Issues
Chair: Prof. Chih-Chien Wang
Date Time: January 2, 2019, 10:00 - 12:00
Place: 8F40, Business Building, National Taipei University, Taipei, Taiwan

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