Artificial Intelligence in Finance

at

Hong Kong University of Science and Technology

Course Schedule

Session	Date	Topic	Application & Case Study	In-Class Activity
1	Feb 1	– History and Overview of Artificial Intelligence	– Google Experiments: Draw!	– Kahoot
2	Feb 15	– Supervised & Unsupervised Learning – Classification vs. Regression	– Google Experiments: Vision Sensing – Case study: HireVue (Video Analytics for Recruitment)	– Class survey and group formation – Kahoot
3	Feb 22	– Regression & Classification – Model Assessment and Selection	– Speaker: Katrina Fong – Case study: WorkFusion (Robotic Process Automation)	– Kahoot
4	Mar 1	– Neural Network Basics – Perceptrons	– Credit analysis – Case study: Clover (Temporal Unfolding)	– Kahoot
5	Mar 8	– Deep Learning – Hyperparameter Optimization & Tuning	– TensorFlow Neural Network Playground	– Kahoot
6	Mar 15	– Practitioners' Perspectives – Independent Consultation for Projects	– Slido Q&A	– Sharing from researchers and industry professionals
7	Mar 22	– Recurrent Neural Network (RNN)	– Natural language processing – Case study: Deep Instinct (Cybersecurity) – Speaker: Mr. Jeffrey Hui	– Word2Vec – Kahoot
8	Mar 29	– Convolutional Neural Network (CNN)	– Google Image Recognition – Case study: SenseTime (Computer Vision)	– 3D Visualization of CNN – Kahoot
9	Apr 12	– Reinforcement Learning	– Case study: Osaro (Robotics), Ascent (Autonomous Driving)	– Kahoot
10	Apr 26	– Midterm Exam – Independent Consultation for Projects		– TBA
11	May 3	– Recent Advances & Applications of AI – Catalysts & Enablers of AI	– Recap of concepts – Case studies: Airobotics (Drones), Cornami (AI Chip)	– Kahoot
12	May 10	– Frontiers of AI – Challenges in AI Commercialization	– Recap of concepts – Case studies: Prophesee (Computer Vision), Prowler (AGI) – Speaker: Mr. Christopher Lee	– Review of Neural Ordinary Differential Equations (NIPS 2018)
13	May 17	– Synthesis & Outlook		– Final presentations (details TBD)

Note: Details may change depending on class progress, development of relevant technologies, as well as information and feedback from students' surveys.
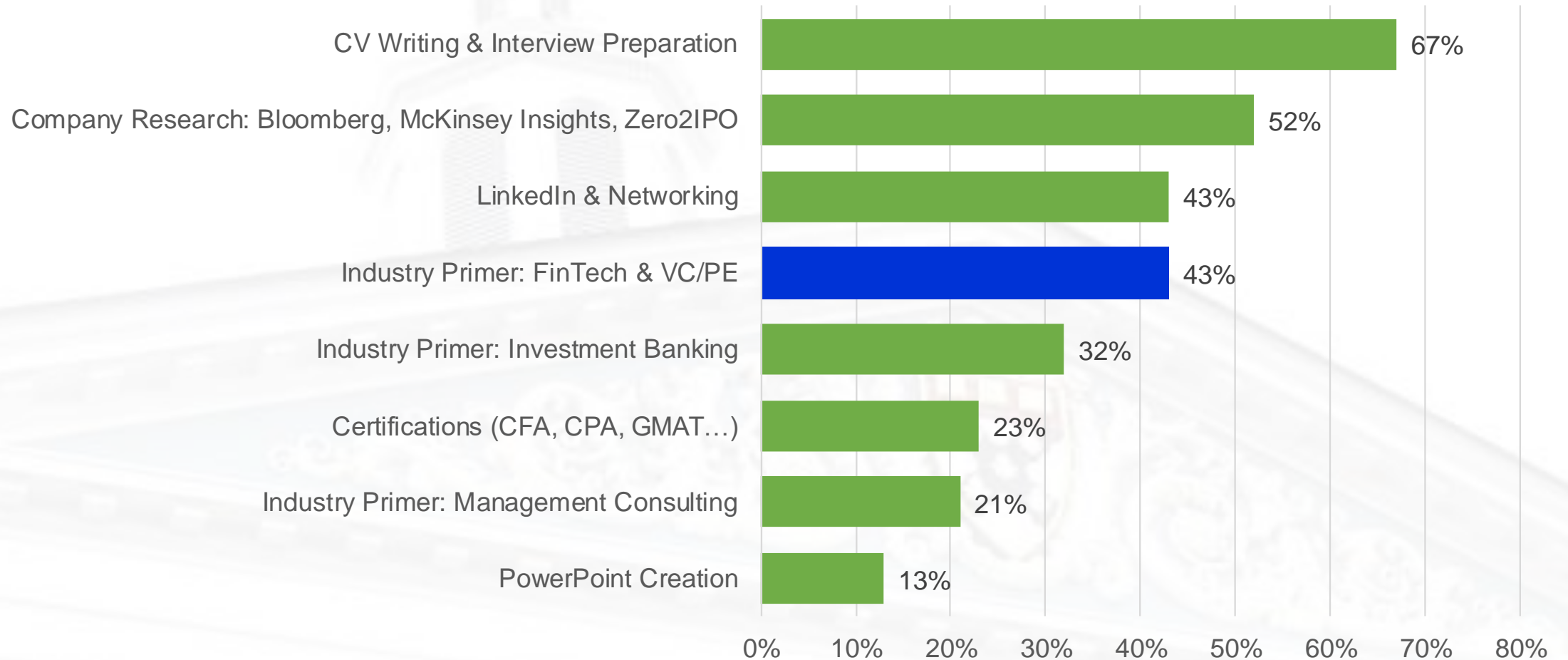
Interact

Encourage

Reward

kahoot!

https://kahoot.it/

Please wait for the Game Pin
Use your full name for attendance

Beyond the Classroom

Topics of Interest
(n = 75)

Topic	Percentage
CV Writing & Interview Preparation	67%
Company Research: Bloomberg, McKinsey Insights, Zero2IPO	52%
LinkedIn & Networking	43%
Industry Primer: FinTech & VC/PE	43%
Industry Primer: Investment Banking	32%
Certifications (CFA, CPA, GMAT…)	23%
Industry Primer: Management Consulting	21%
PowerPoint Creation	13%

Beyond the Classroom

Session	Date	Topic
3	Feb 22	– HireVue: Recruiting & AI
4	Mar 1	– Industry Primer: FinTech & VC/PE
5	Mar 8	– CV Writing & Interview Preparation
6	Mar 15	– Company Research: Bloomberg, McKinsey Insights, Zero2IPO
7	Mar 22	– N/A

Session	Date	Topic
8	Mar 29	– LinkedIn & Networking
9	Apr 12	– Industry Primer: Investment Banking
10	Apr 26	– Certifications (CFA, CPA, GMAT…)
11	May 3	– Industry Primer: Management Consulting
12	May 10	– PowerPoint & Presentation Skills

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WE'RE HIRING!

Alpha Intelligence Capital

Key Responsibilities

- Keen interest and experience in venture capital transactions and financial analysis
- Familiar with transaction legal documents and investment structure
- Understanding of the commercialization of technologies from an investor perspective
- Conduct due diligence for potential investments in the AI space
- Assist in the preparation of deal-related materials (e.g. data collection, industry research, comparable company and valuation analysis)

Position Requirements

- Undergraduate or postgraduate students, preferably majoring in Finance, Investments, Legal Studies, and/or Business Analytics
- Experience in using Bloomberg, S&P Capital IQ, Pitchbook, and Wind preferred
- Exposure and understanding of the high-tech industry (especially AI/ML) a plus
- Strong sense of responsibility and attention to details

Availability: Spring and Summer 2019
Number of Openings: 1-2
Renumeration: Market competitive
Office: Central • Hong Kong

Anthony Woo
CFA CAIA FRM
Associate Director
Alpha Intelligence Capital
aw@aicapital.ai

Final Project Options

	Option A	Option B
Nature	Unleash your imagination	Solve a real-life problem
Organization	HKUST	HKUST & AIC
Advantage	More freedom[1]	More guidance
Requirements	N/A	Interview
Scope	No limit	Specific
Group Composition	Free for all	Managed
Deliverables	Final presentation	Monthly progress reports Monthly update meetings Final presentation
Recommendation Letter	N/A	Provided[2]
Full-Time Positions	Considered	Considered

Note 1: Equal amount of guidance provided for Option A but more self-initiative is called for.
Note 2: Recommendation letters provided based on satisfactory performance.

WorkFusion

Robotic Process Automation
机器人与工序自动化
Full-stack AI-enabled Robotic Process Automation (RPA) solution suite for business-critical tasks spanning multiple applications and data silos

Q^xBranch

Quantum Computing
量子计算
Solution provider and platform developer for quantum and classical computing for predictive analytics, forecasting, and optimization

商汤 sensetime

Computer Vision
计算机视觉
Developer of deep learning technology-based computer vision solutions aimed at a broad range of consumer and enterprise applications

Yewno

Knowledge Graph
知识图表
Dynamically evolving knowledge graphs that provides inference strength across concepts, events and themes derived from a wide variety of information services

Track & Monitor

OSARO

Real-Time Robotics Automation
实时机器人自动化
Deep reinforcement learning-based AI software platform that enables enhanced perception, reaction and control in real-time robotics environments

AB another brain

AI Chips
人工智能芯片
Deep reinforcement learning-based AI software platform that enables enhanced perception, reaction and control in real-time robotics environments

deepinstinct
BEFORE YOU KNOW IT

Cybersecurity
网络安全
Advanced deep learning technology-based cybersecurity products and solutions for threat detection and prevention

A.I.MUSIC

Music Augmentation
音乐强化
Developer of a music augmentation technology that transforms linear music to dynamically personalized music for consumers, ad-agencies, music labels, and producers

File Edit View Insert Format Data Tools Add-ons Help

Working...

https://goo.gl/KRoiJt

	A	B	C	D
1				
2				
3	**Important Notes**			
4	Add a row by clicking "Insert" and "Row above"			
5	Start a new line within a cell by pressing Alt+Enter			
6				
7	**Name**	**Idea**	**Description**	**What I need**
8	Anthony Woo	AI for financial statement analysis	Proprietary tool for hedge funds to compare financial statements over time Time-series analysis of stock price augmented with NLP (natural language programming)	Understanding of basic AI techniques including decisi
9	Anthony Woo	Career analytics for university students	App with recruiting information and solutions for college students Matching algorithm for internships and full-time positions	Data analysts who are interested in education
10	张般若傻了 ???哈哈 我也觉得 +1			
11	???			
12	Carol			
13	高级表白墙?			
14				
15	He Yuhang			
16	PAN JIAYI	AI in High Frequency Algo Trading	Use AI algorithm to develop traading strategies	AI algorithm, data for strategy development
17	LI YE			
18	XIE Hao	Artificial intelligence for financial risk management	Traditional risk mangement techniques involve the scrutiny of cutomer's credit records. The AI techniques can be used to track customer's credit	
19	LIU Yuchen			
20	HUANG Baohui			
21	CHEN Shuying			
22				
23	ZHANG Qianying			
24	XU Lliyuan			
25	QIAN Jing			
26	Zhang Banruo			
27				
28	ZHAO Jingru			
29	WU Jianmei			
30	LIU YIFEI			
31	HUANG Xingyi			

9

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#UST

INFRASTRUCTURE

HADOOP ON-PREMISE
cloudera, Hortonworks, MAPR, Pivotal, IBM InfoSphere, bluedata, jethro

HADOOP IN THE CLOUD
amazon web services, Microsoft Azure, confluent, Google Cloud Platform, IBM InfoSphere BigInsights, TREASURE DATA, GridGain, METAMARKETS, Qubole, altiscale, CAZENA, CenturyLink

STREAMING / IN-MEMORY
amazon web services, databricks, confluent, striim, GridGain, METAMARKETS, DATATORRENT, dataArtisans, ORACLE, hazelcast, TERRACOTTA

NOSQL DATABASES
Google Cloud Platform, ORACLE, amazon DynamoDB, Microsoft Azure, MarkLogic, mongoDB, DATASTAX, AEROSPIKE, Couchbase, redislabs, influxdata

NEWSQL DATABASES
SAP, Clustrix, Pivotal, nuoDB, Cockroach LABS, memsql, splice machine, MariaDB, VOLTDB, citusdata, Trafodion, deep.db, paradigm4

GRAPH DBS
neo4j, IBM, ORACLE, OrientDB, InfiniteGraph, Objectivity

MPP DBS
TERADATA, VERTICA, NETEZZA, Kognitio, EXASOL, snowflake, Infoworks

CLOUD EDW
amazon web services, Google Cloud Platform, Microsoft Azure, Pivotal

DATA TRANSFORMATION
talend, pentaho, alteryx, TRIFACTA, tamr, Paxata, StreamSets, UNIFI

DATA INTEGRATION
informatica, MuleSoft, snapLogic, TEALIUM, Segment, enigma, podium data, alooma, xplenty, ZALONI, import.io, Stitch

DATA GOVERNANCE
informatica, IBM, skyhigh, collibra, Alation, Waterline Data

MGMT / MONITORING
amazon web services, New Relic, APPDYNAMICS, actifio, DATADOG, WAVEFRONT, unravel, splunk, circonus, Anodot, instana, pagerduty, Numerify

STORAGE
amazon web services, Google Cloud Platform, Microsoft Azure, ALLUXIO, nimblestorage, COHO, Qumulo, panasas

CLUSTER SERVICES
amazon web services, kubernetes, docker, MESOSPHERE, CoreOS, pepperdata

APP DEV
lightbend, Apcera

CROWDSOURCING
amazon mechanical turk, Upwork, WorkFusion, rainforest, CrowdFlower

HARDWARE
Google TPU, ARM, nervana SYSTEMS, Graphcore, MYTHIC, Cerebras, nvidia, Movidius, SCORTEX

ANALYTICS

DATA ANALYST PLATFORMS
Microsoft, pentaho, alteryx, Digital Reasoning, GUAVUS, AYASDI, ATTIVIO, Datameer, Quid, ClearStory, OrigamiLogic, inter.ana, Bottlenose, ARIMO, ENDOR, MODE

DATA SCIENCE PLATFORMS
IBM, KNIME, data iku, DOMINO, yhat, rapidminer, CONTINUUM ANALYTICS, Alpine, ALGORITHMIA, Angoss

BI PLATFORMS
Microsoft, DOMO, amazon web services, sisense, looker, Wave Analytics, ARCADIA DATA, GoodData, birst

VISUALIZATION
tableau, SAP, Google Cloud Platform, Qlik, Celonis, MapD, Periscope, ZEPL, atscale, CHARTIO, plotly, ZOOMDATA

VERTICAL ANALYTICS
PREDIX, IoT, CAPE, UPTAKE, Orbital Insight, TACHYUS, Alluvium, datorama

STATISTICAL COMPUTING
SAS, SPSS, MATLAB

DATA SERVICES
Palantir, Numenta, OPERA, DATA SCIENCE, kaggle, Fractal, EXL, DataKind, FF

MACHINE LEARNING
Azure Machine Learning, amazon web services, Google Cloud Platform, H2O.ai, DataRobot, context relevant, ViSENZE, bonsai, DATARPM, nara logics, nutonian

HORIZONTAL AI
IBM Watson, Cortana, NarrativeScience, semantic machines, amazon alexa, Voyager Labs, vicarious, clarifai, WolframAlpha, Affectiva, CognitiveScale, SENSETIME, cronobo, PETUUM, Numenta, OSARO, BLUE VISION, THE CURIOUS AI COMPANY

SPEECH & NLP
Google Cloud Platform, twilio, NUANCE, ARRIA, IDIBON, TalkIQ, cortical.io, snips, yseop, Gridspace, SoundHound Inc.

SEARCH
Autonomy, elastic, EXALEAD, ORACLE, ENDECA, ThoughtSpot, Algolia, Lucidworks, swiftype, MAANA, alphasense, SINEQUA, Searchink

LOG ANALYTICS
splunk, sumologic, loggly, kibana, logz.io

SOCIAL ANALYTICS
Hootsuite, sprinklr, NETBASE, DATASIFT, tracx, synthesio, smartereach, bitly, predata

WEB / MOBILE / COMMERCE ANALYTICS
Google Analytics, AMPLITUDE, mixpanel, Airtable, sumall, retention, SIGOPT, granify, custora

APPLICATIONS – ENTERPRISE

SALES
einstein, CHORUS, INSIDESALES.COM, conversica, Gong, clari, AVISO, TACT, fuse machines, TROOPS

MARKETING - B2B
RADIUS, App Annie, EVERSTRING, Lattice, infer, MINTIGO, Reflektion, 6sense, tubular

MARKETING - B2C
Zeta, bloomreach, PERSADO, ACTIONIQ, blue yonder, kahuna, BLUECORE, SAILTHRU, QUANTIFIND, mparticle, Amplero

CUSTOMER SERVICE
MEDALLIA, zendesk, CLARABRIDGE, Gainsight, CLICKFOX, NGDATA, DigitalGenius, appuri, AUTOMAT, frame.ai, msg.ai, INTERCOM

HUMAN CAPITAL
Hire-Vue, entelo, hiQ, GIGSTER, textio, RESTLESS BANDIT, Wade&Wendy, Clustree, Stella, pymetrics

LEGAL
RAVEL, Seal, Everlaw, JUDICATA, Brevia, Clara, talla, casetext, ROSS

FINANCE
anaplan, zuora, tidemark

ENTERPRISE PRODUCTIVITY
slack, facebook, ORACLE, SAP S/4 HANA, lumiata, diffbot, butter.ai, KASISTO

BACK OFFICE AUTOMATION
HyperScience, Captricity, AppZen

SECURITY
TANIUM, CYLANCE, StackPath, DARKTRACE, illumio, CODE42, ThreatMetrix, DataGravity, cybereason, CipherCloud, Guardian Analytics, ANOMALI, sift science, SIGNIFYD, SentinelOne, SecurityScorecard, BlueTalon, AREA 1 SECURITY, Recorded Future, feedzai, SQREAM, FORTSCALE, Kaspersky, sparkcognition

APPLICATIONS – INDUSTRY

ADVERTISING
AppNexus, MediaMath, criteo, xAd, Integral Ad Science, rocketfuel, OpenX, MOAT, theTradeDesk, dstillery, Algorithmia, drawbridge, LiveIntent, gumgum, TAPAD, Data.Xu, Yieldmo, Appier, DYNAMIC YIELD

EDUCATION
KNEWTON, Clever, declara, kidaptive, PANORAMA, knowre, gradescope

GOVERNMENT
Socrata, OPENGOV, mark43, FiscalNote, OpenDataSoft

FINANCE - LENDING
OnDeck, Affirm, Kreditech, AVANT, neo finance, INSIKT, TALA, MoneyLion, TrueAccord, cignifi, aire, Active.AI

FINANCE - INVESTING
Dataminr, KENSHO, Quantopian, NUMERAI, iSENTIUM, claritymoney, trooly, ALGORIZ, ADDEPAR, RavenPack

REAL ESTATE
Opendoor, VTS, reonomy, COMPSTAK

INSURANCE
metromile, Lemonade, CYENCE, Shift Technology, Tractable

HEALTHCARE
FLATIRON, KYRUUS, HealthTap, METABIOTA, Ginger.io, Glow, COTA, zebra, AiCure, enlitic, imagia, Qventus, Kang Health

LIFE SCIENCES
23andMe, color, zymergen, BenevolentAI, ovla, ZEPHYR HEALTH, Clear Labs, Citrine, twoXAR, deep genomics, Atomwise

TRANSPORTATION
UBER, ZOOX, TESLA, nuTonomy, CLEARPATH, nauto, drive.ai, piloti.ai, OPTIMUS, OTTO, nexar, comma.ai, Civil Maps, netradyne, nio

AGRICULTURE
FARMERS, FarmersEdge, FarmLogs, BLUE RIVER, mavrx, Terravion, HowGood, prospera

COMMERCE
instacart, STITCH FIX, RetailNext

OTHER
eHarmony, stem, rethink robotics, RIGHT MACHINE, boxever, celect, VERDIGRIS, duetto, Unbabel, Second Spectrum, Jukedeck

CROSS-INFRASTRUCTURE/ANALYTICS
amazon web services, Google Cloud Platform, Microsoft, IBM, SAP, Hewlett Packard Enterprise, SAS, 1010data, vmware, TIBCO, TERADATA, ORACLE, NetApp

OPEN SOURCE

FRAMEWORK
hadoop HDFS, hadoop MapReduce, Flink, YARN, TEZ, Spark, MESOS, CDAP

QUERY / DATA FLOW
Spark SQL, presto, Pig, SLAMDATA, APACHE DRILL

DATA ACCESS
cassandra, nifi, mongoDB, SciDB, CouchDB, OpenTSDB, riak, HBASE, Spanner, accumulo

COORDINATION
talend, Apache Zookeeper, Apache Ambari

STREAMING
Spark, APEX, Flink, beam, kafka, druid, STORM

STAT TOOLS
python, R, ScalaLab, NumPy, SciPy

AI / MACHINE LEARNING / DEEP LEARNING
TensorFlow, theano, Caffe, CNTK, MADlib, learn, Apache SINGA, OpenAI, DMTK, Keras, PredictionIO, neon, FeatureFu, mxnet, VELES, WEKA, Chainer, DIMSUM, DSSTNE, mllib, DL4J, Aerosolve

SEARCH
elasticsearch, Solr, Lucene

LOG ANALYSIS
elasticsearch, kibana, logstash

VISUALIZATION
BEAKER, Rodeo

COLLABORATION
jupyter, ANACONDA, zeppelin

SECURITY
Apache Ranger, KNOX, Sentry

The Virtuous Cycle of Data Network Effects

USERS CONTRIBUTE MORE DATA

PRODUCT GETS SMARTER

MORE PEOPLE USE THE SERVICE

Katrina Fong

FinTech Recruiting Consultant at Hays

www.linkedin.com/in/katrinafong

- Katrina is a FinTech specialized recruitment consultant from Hays, and is completing Higher Education Teaching Certificate course from Harvard. She has a history of building successful working relationships with exceptional clients across the FinTech space in AI, Machine Learning, Crypto & Blockchain, Payment, Virtual Bank, Digital Transformation, Robo Advisory etc.

- She has played key roles in building the technology teams for **HSBC** (**PayMe** & **Jasmine FinTech**), **Standard Charted Bank** (Virtual Banking), **Hang Seng Bank** (Digital Transformation via Chatbots and AI), **DBS Innovation Hub**, **Bank of East Asia**, **Tencent**, **Alipay**, **Blue** (first digital life insurer by Aviva and Tencent), **Alipay**, **Accenture**, **KPMG**, **Deloitte Digital**, **PricewaterhouseCoopers**, and leading FinTech start-ups such as **WeLend**, **Privé Technologies**, **MioTech** etc. Due to this wealth of knowledge, market intelligence, and extensive network, she has many repeated success in the FinTech field and retained on the region's most high profile assignments.

- Prior to recruitment, Katrina used to be a serial entrepreneur in Education Consulting as well as EF Education as Course Leader in United States & United Kingdom.

Case Studies: HSBC & Hang Seng

- HSBC's chatbot is called Amy, while Hang Seng Bank's are called DORI and HARO

- As well as being there 24/7 to answer customer queries, the chatbots will also help to speed up services, which will save firms a great deal of money in the long run

- While DORI's role involves searching for dining discounts and making personalized recommendations to its customers through the likes of Facebook, HARO focuses on its customers' banking needs and is available both online and through the company's mobile app

- The hardest part for most firms is not the integration of AI into their business, but finding the right people to deal with the actual maintenance once up-and-running

Case Studies: Clare.AI & Asiabots

Claire.AI

- Chatbot start-up powered by machine learning and natural language processing, specifically in Cantonese

- Claire.AI helps financial institutions provide a more personalized experience for their customers

Asiabots

- Asiabots serves private clients to public clients and has developed a medical platform called Dr. Care (Clinicbot)

- Dr. Care utilizes latest natural language processing technology (Chinese, Cantonese, English) and AI to assist patients from understanding their potential health problems through symptom checking to finding a suitable doctors or medical solution

Chatbot Job Openings

Job Openings in Hong Kong

- Niche area with very limited number of vacancies, yet the demand is getting higher

- Not easy to find Chatbot Developers in Hong Kong, most of the time companies would buy from Vendor/Start-up and integrate

- Chatbot Product Owner, Project Manager, and Consultant are of high demand

Job Openings in Hong Kong (Cont'd)

- Candidates normally only have 2-3 years of professional working experiences within the area

FinTech Trends in Hong Kong

- Payment (PayMe, Tap & Go, Alipay, WeChat Pay)

- Crypto and Blockchain

- Wealth Management and Robo-Advisory

- Regulatory Tech (RegTech)

- Insurance Tech (InsurTech)

- Corporate-Startup Collaborations

Deep Learning on Bespoke Video Assessments

★

Question 1 of 6

Scenario

Imagine you are responding to a call from a customer in which the person is noticeably upset because they are locked out of their account. She informs you that she needs to transfer funds immediately from her investment account to a bank account to avoid overdrawing on the account. You try to address the customer's concerns, but she demands to speak to your supervisor.

How would you attempt to de-escalate the situation first without involving your supervisor?

Video Response

☒ no retries   ⏱ minutes: 3

Prep time :30   **Begin Answering**
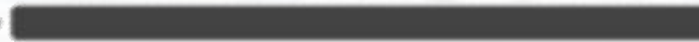
TEXT
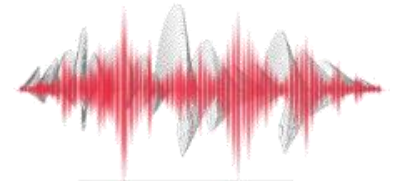
AUDIO

VIDEO

W

Aug 2011
May 2013
MORGAN STANLEY ASIA   **HONG KONG, CHINA**
Associate, Investment Banking Division – Hong Kong Corporate Finance Coverage Team
- Shangri-La Asia inaugural issuance of US$600MM under US$3Bn Medium Term Note Program
- Multiple senior unsecured bond offerings for Hong Kong corporates, such as Kerry Properties (US$600MM), Hang Lung Properties (US$500MM), Nan Fung (US$300MM), and PCCW (US$500MM)

Summer 2010
Summer Associate, Investment Banking Division – Technology, Media & Telecommunications Group
- US$272MM IPO of Dangdang Inc., China's largest B2C e-commerce company (equivalent of Amazon)

2006 – 20
J.P. MORGAN CHASE & CO.
2008 – 2009
Investment Strategy Analyst, J.P. Morgan Private Wealth Management   **NEW YORK, NY**
- Sole analyst directly supporting the global Chief Investment Officer (CIO) and Chief Economist of PWM

2006 – 2008
Financial Analyst, J.P. Morgan Private Bank   **SAN FRANCISCO, CA**

Summer 2007
Financial Analyst, J.P. Morgan Private Bank, EMEA Equity Derivatives Group   **LONDON, UK**

E

Education
2015 – 20
UNIVERSITY OF HONG KONG   **HONG KONG, CHINA**
Master of Science in Information Technology in Education (Specialist Strand: e-Leadership), *Distinction*.

2009 – 20
HARVARD BUSINESS SCHOOL   **BOSTON, MA**
MBA. Co-producer, Asian Cultural Show. Advisor, Harvard Innovation Lab (iLab)

2002 – 20
UNIVERSITY OF CALIFORNIA, BERKELEY – HAAS SCHOOL OF BUSINESS BERKELEY, CA
Bachelor of Science in Business Administration, *summa cum laude* (cumulative GPA: 3.9, top 3% of class). Dean's Honor List (02-06). President, California Investment Associat   (as-sponsored investment fund)

T

Technology-related Certifications
Certificate on Machine Learning for B   ata & Text Processing at MIT Computer Science and Artificial Intelligence Laboratory (CSAIL). Ce   e on Deep Learning and Machine Learning with TensorFlow. Certified Bitcoin Professional (CBP). Conducted research into Probabilistic Topic Modeling using R

W

Aug 2011 – May 2013	**MORGAN STANLEY ASIA** **HONG KONG, CHINA**

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- Sole analyst directly supporting the global Chief Investment Officer (CIO) and Chief Economist of PWM — **CDO**

2006 – 2008   **Financial Analyst, J.P. Morgan Private Bank**   **SAN FRANCISCO, CA**

Summer 2007   **Financial Analyst, J.P. Morgan Private Bank, EMEA Equity Derivatives Group**   **LONDON, UK**

E

Education

2015 – 2016   **UNIVERSITY OF HONG KONG**   **HONG KONG, CHINA**
Master of Science in Information Technology in Education (Specialist Strand: e-Leadership), *Distinction*.

2009 – 2011   **HARVARD BUSINESS SCHOOL**   **BOSTON, MA**
MBA. Co-producer, Asian Cultural Show. Advisor, Harvard Innovation Lab (iLab)

2002 – 2006   **UNIVERSITY OF CALIFORNIA, BERKELEY – HAAS SCHOOL OF BUSINESS**   **BERKELEY, CA**
Bachelor of Science in Business Administration, *summa cum laude* (cumulative GPA: 3.9, top 3% of class). Dean's Honor List (02-06). President, California Investment Association (Haas-sponsored investment fund)

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Certificate on Machine Learning for Big Data & Text Processing at MIT Computer Science and Artificial Intelligence Laboratory (CSAIL). Certificate on Deep Learning and Machine Learning with TensorFlow. Certified Bitcoin Professional (CBP). Conducted research into Probabilistic Topic Modeling using R

![The Hong Kong University of Science and Technology logo]
香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

MAFS6010U: Artificial Intelligence in Finance

▲

Complete and e-mail this form to course TA Mr. Yifei Huang at aifin.hkust@gmail.com
on or before March 1, 2019 (Fri).

▼

Basic Information

English Name	Chinese Name	Photo

Name you prefer to be called:	
Program at HKUST:	
E-mail:	
Student ID:	

Academic & Professional Background

What is your undergraduate university and major?

_____

Brief description of recent work experience (including internships):

_____

_____

Share with us something unique about yourself that is important to you (e.g. interests, hobbies, talents, awards, overseas experience):

https://goo.gl/xGFxpn

WorkFusion

Overview	Financing
• Provider of an **intelligent automation platform** designed to digitize enterprise operations • Intelligent automation platform offers AI-based tools needed to automate business processes, enabling enterprises to digitize their operation, increase productivity and improve service delivery	• Raised US$50 million of **Series E** venture funding in a deal led by Hawk Equity and Declaration Partners in May 2018 at a valuation of US$350 million • Investors include NewYork-Presbyterian Ventures, NGP Capital, Georgian Partners, Alpha Intelligence Capital, iNovia Capital, Guardian Life Insurance Company of America, and PNC Bank National Association

Source: WorkFusion

WorkFusion

	Case Study I	Case Study II	Case Study III
Business Problem	The bank was looking at opportunities to improve their customer experience as part of their efforts to digitize bank operations	A global performance management company that provides information about what consumers watch and buy faced challenges in product categorization and SKU management	A leading multinational software corporation was looking to transform the way they process their customer invoices
Business Outcome	The bank reduced the average time for customer onboarding from **16 days to 9 minutes**	**Achieved 98.5% accuracy** in product categorization with up to 70% of the process automated and **reduced manual effort by up to 80%**	**67% reduction in the number of FTEs** needed in the process and improved accuracy with **20% reduction in help desk inquiries**

Source: Everest Group Report on WorkFusion (2017)

WorkFusion
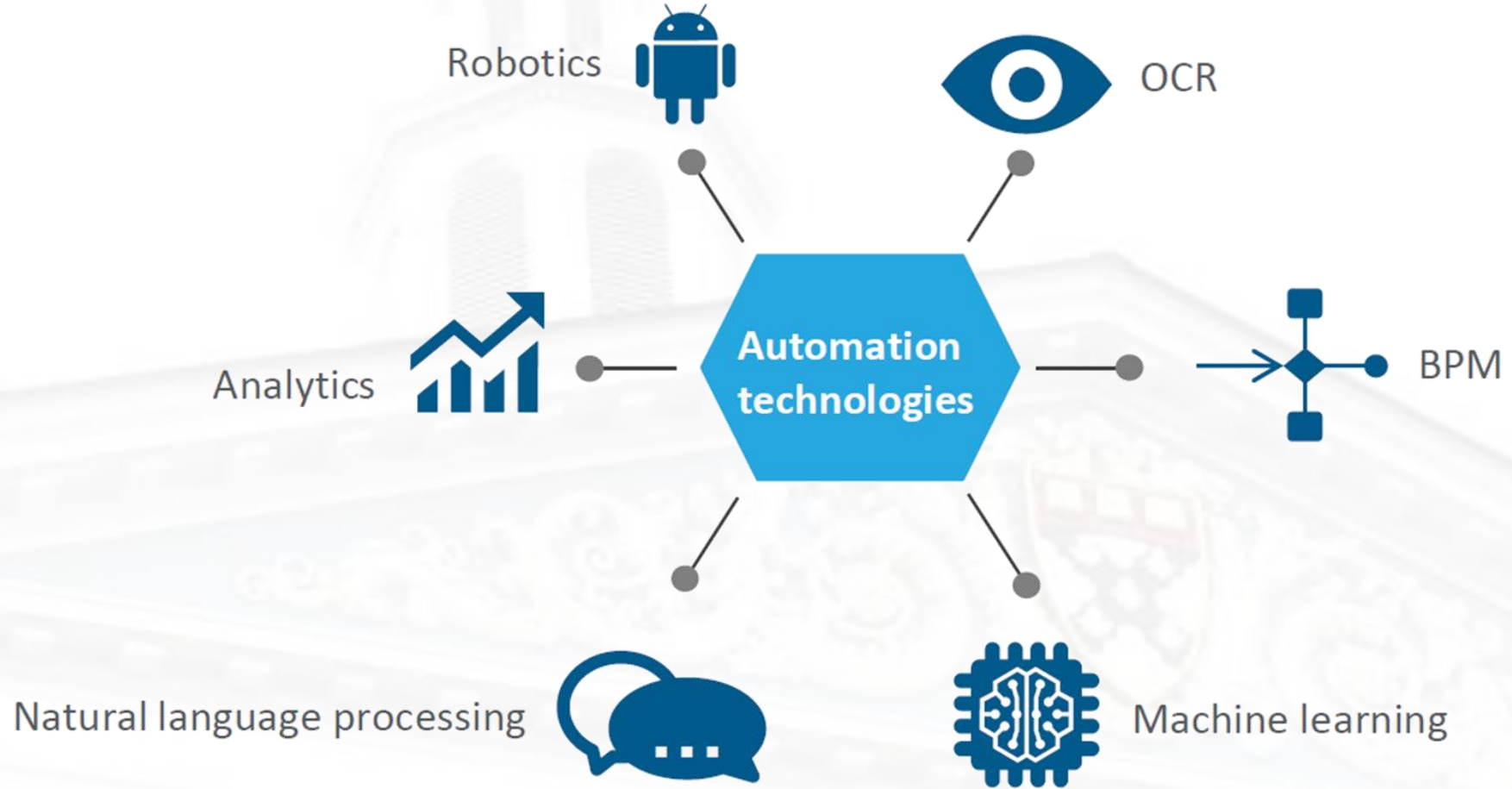
	RPA	Cognitive Automation
Key Characteristics	• Deterministic • Rules-based automation • Workflows and code are embedded manually • Deployed to automate transactional and repetitive tasks of business processes • Handles structured and semi-structured data	• Automates knowledge-based processes • Learns by itself and builds knowledge bases over time • Deployed to automate conversational and complex business processes • Handles all types of data including unstructured
Differentiating Technologies & Capabilities	• Screen scraping • Rules engine • Basic analytics • Library of pre-built automations • Bot performance analytics	• Machine learning • Natural language processing • Advanced analytics • Data capture • Workplace analytics • Automated training and self-learning • Library of machine learning algorithms • Performance management • Resource management

Source: Everest Group Report on WorkFusion (2017)

WorkFusion

Bot	Key Characteristics
Agent-Assist Bot	• Assist customer service agents in handling queries by automating various applications • Monitor the screen of agents and guide them with the next best action
Copy-Paste Bot	• Execute rules-based processes to move structured data from one application to another
Reconciliation Bot	• Match transactions across disparate systems and detect errors (e.g. subjective mapping and hence such bots also require AI capabilities)
Dispatch Bot	• Classify documents from multiple sources into different categories • Classification often involves screening documents in multiple formats (text, images, etc.) and hence requires automation technologies such as OCR, along with RPA and AI
Data-Entry Bot	• Gather relevant information from unstructured documents for relevant systems or applications • Collecting and processing unstructured data with OCR and AI capabilities to read and interpret data in multiple formats
Chatbot	• Directly interact with customers in natural language to solve low-complexity queries • Determine customer intent and sentiments with NLP and ML and respond accordingly to customer queries or escalate to concerned departments to be handled by human agents

Source: Everest Group Report on WorkFusion (2017)

WorkFusion

Type of Business Process	Sample Use Case	Smart Digital Workforce	Business Outcomes
Transactional	Validating customer information in Know-Your-Customer (KYC) process	RPA bots, humans for exceptions	• Cost reduction • Increased workforce productivity • Increased process efficiency • Regulatory compliance
Transactional	Self-service: Answering FAQs in interactive chat	Chatbots, RPA bots, and human agents for exceptions	• Enhanced customer experience • Increased process efficiency • Improved agility
Transactional	Consumer onboarding	RPA bots with OCR for forms screening, and human agents and cognitive bots for exceptions	• Cost reduction • Improved quality and process efficiency • Enhanced customer experience
Knowledge-Based	Customer servicing: Answering complex customer queries	Chat-assist bots and human agents	• Increased workforce productivity • Increased process efficiency • Enhanced customer experience
Knowledge-Based	Sentiment analysis: Predicting customer emotions	Cognitive bots and human agents for actions	• Increased customer satisfaction • Increased workforce productivity
Knowledge-Based	Fraud detection in banking and financial services	Cognitive bots and human agents	• Better management and control • Increased process efficiency • Regulatory compliance

Source: Everest Group Report on WorkFusion (2017)

Source: Everest Group Report on WorkFusion (2017)
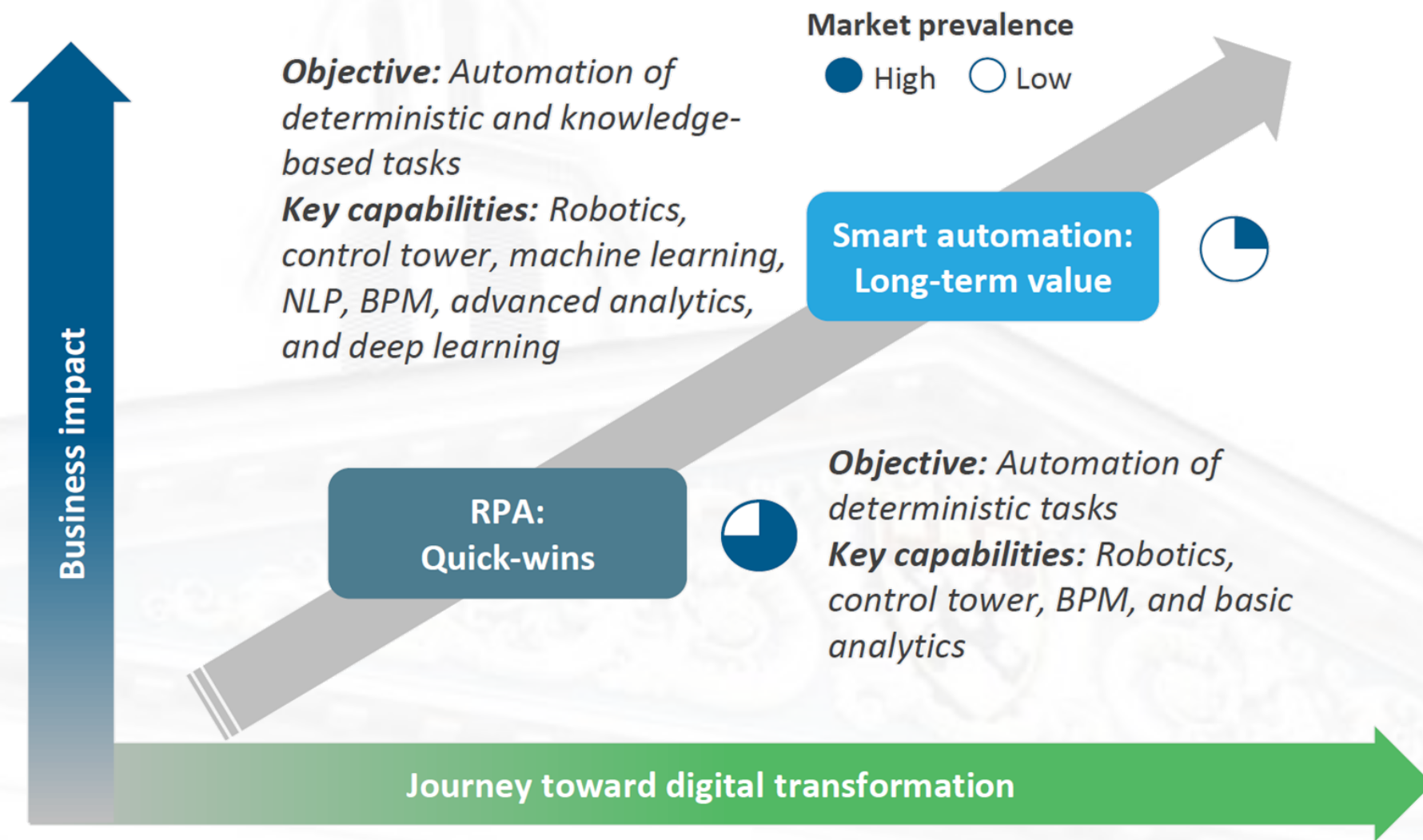
Teachable Machine

October 2017 | By Google Creative Lab

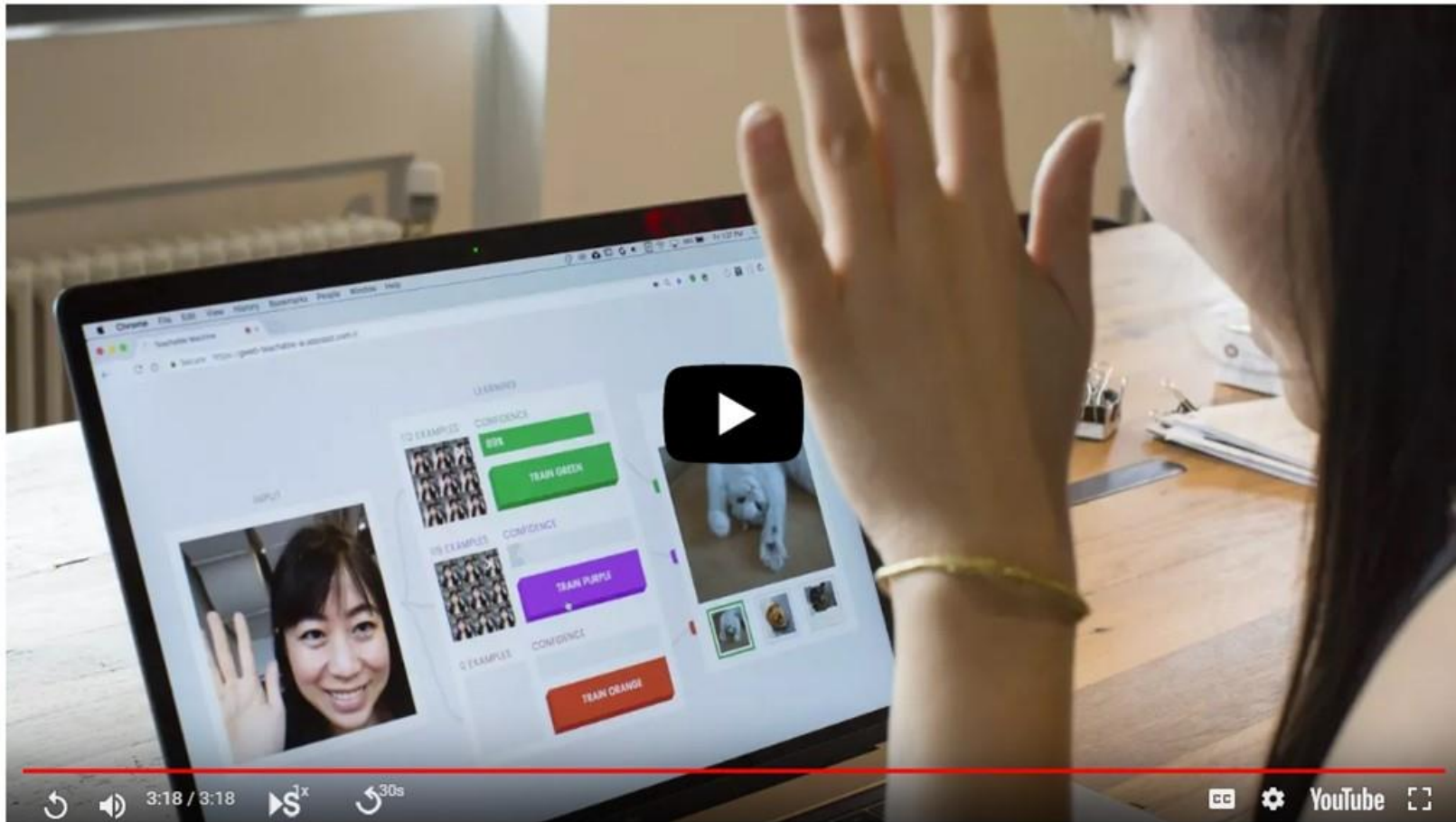Teach a machine using your camera, live in the browser - no coding required.

COLLECTION:

AI Experiments

LAUNCH EXPERIMENT   GET THE CODE

A.I. Experiments:

Teachable Machine