Big Data Institute

Educational Programs

Big Data Institute

Hong Kong and nation's Big Data Research Center

Technology Transformation

Funding Support   **Industry Applications**   **Scientific Research**   **Talent Training**
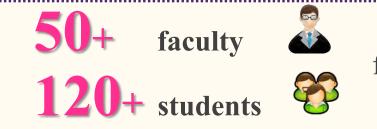
Highlights of BDI Achievements

50+ faculty **120+** students from **interdisciplinary** Schools and Departments for **6 collaborative research projects and 7 joint labs**

Over **HK$ 75 million & US$ 1 million** industrial sponsorship and donation

with one of the largest government-funded ITF Smart City Project

1st
- **Wechat** — Overseas Joint Lab in Asia
- **Line/Naver** — Overseas Joint Lab in the **World**
- **Xunlei** — Overseas Joint Lab in the **World**

Trained **200+** BDT Master Students

Partnership with **leading companies**

Microsoft Alibaba Cloud 迅雷 XUNLEI xiao-i 小i机器人
UBS NVIDIA Hong Kong Society of Artificial Intelligence and Robotics 香港人工智能與機器人學會 and more...
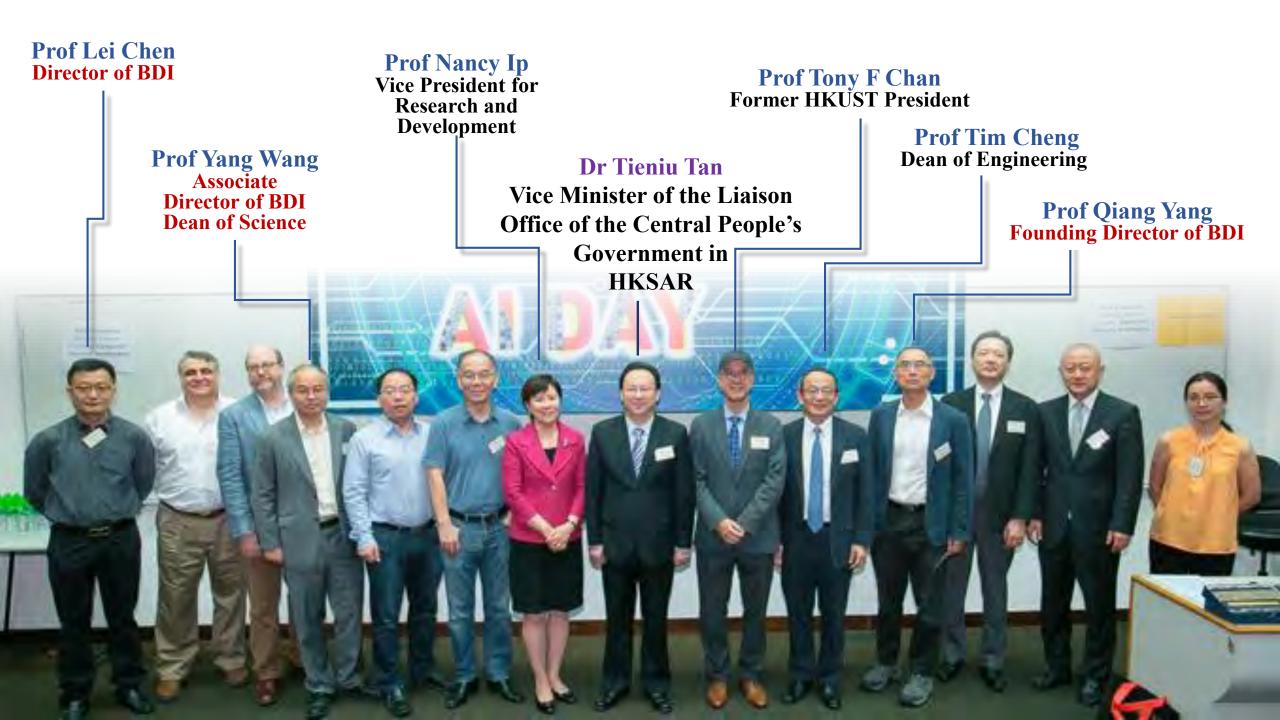
BDI Team

At present, there are more than **50 faculty members** and over **120 students** involved BDI's 6 research projects from

- School of Engineering
- School of Science
- School of Business & Management
- Department of Computer Science and Engineering
- Department of Industrial Engineering and Decision Analytics
- Department of Electronic and Computer Engineering,
- Department of Chemical and Biological Engineering
- Department of Information Systems, Business Statistics and Operations Management
- Department of Mathematics
- Division of Life Science
- Division of Social Science

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HKUST

Associate Director
Yang Wang 汪揚
Dean, School of
Science, HKUST

Founding Director
Qiang Yang 楊強
Chair Professor,
Department of Computer
Science and Engineering,
HKUST

Ke Yi 易珂
Professor, Department of
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Engineering, HKUST

Albert Chung 鍾志成
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Professor, Department of
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I-ming Hsing 邢怡銘
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BDI

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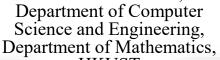
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Mathematics, Department of
Chemical and Biological
Engineering, HKUST

BDI

Industrial Partners and Donation

2015 RMB ¥ 10 million **Tencent**

2016 US$ 1 million *Mr. Raymond Chu*

2015 HK$ 10 million **ITF (Innovation and Technology Fund) Smart Transportation project partnered with** THALES
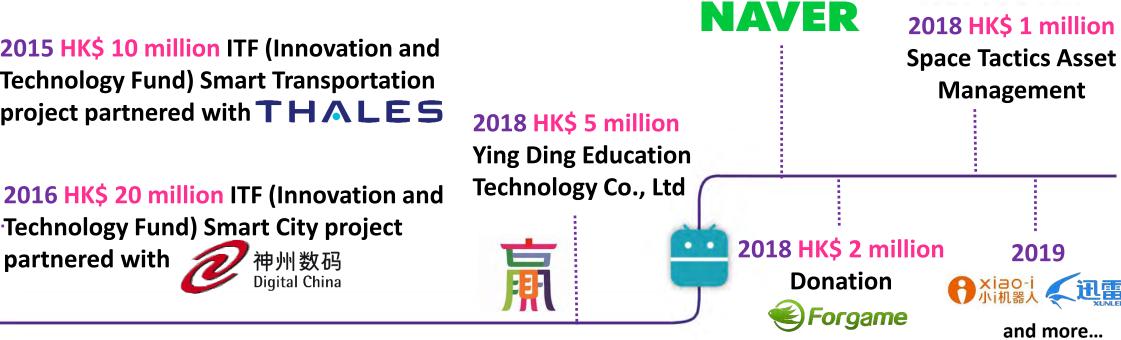
2016 HK$ 20 million **ITF (Innovation and Technology Fund) Smart City project partnered with** 神州数码 Digital China

2018 HK$ 5 million **Ying Ding Education Technology Co., Ltd**

2018 HK$ 2.46 million **NAVER**

思彼思 o2o SPACE
思 彼 思 商 業 控 股 (集 團)

2018 HK$ 1 million **Space Tactics Asset Management**

2018 HK$ 2 million **Donation** Forgame

2019 xiao-i 小i机器人 迅雷 XUNLEI **and more...**

OUR LABS

WHAT Lab

BDBI-Machine Learning Lab

Smart City Lab

HKUST-Ying Ding Education AI Lab

NAVER

HKUST-NAVER/LINE AI Lab

XUNLEI

Forgame

xiao-i 小i机器人

思彼思 o2o SPACE
思彼思商業控股(集團)

2015-11-26 WHAT Lab was established in HKUST

Tencent entered into a 5-year research partnership with BDI since late 2015, amounts to RMB10 million in total.

WeChat and HKUST will jointly conduct Artificial Intelligence (AI) Technology related research and explore the far-reaching frontiers of AI. This collaboration on AI research is expected to be long-term and world-leading. Research areas of WHAT LAB include intelligent robotic systems, natural language processing, data mining, speech recognition and understanding.

Aims at social networking big data mining and machine learning, natural language processing and robotics research.

➢ **Natural language processing**

➢ **Data Mining & Visualization**

➢ **Video Analysis**

➢ **Large –Scale Machine Learning**

➢ **Robotic Application**

Machine Reading aims to develop Machine Learning algorithms that could read and comprehend natural language documents as humans do.
With Machine Reading, natural language information is converted to the form that could be processed by computers, and could be further utilized in applications such as summarization, question answering and dialogue system.
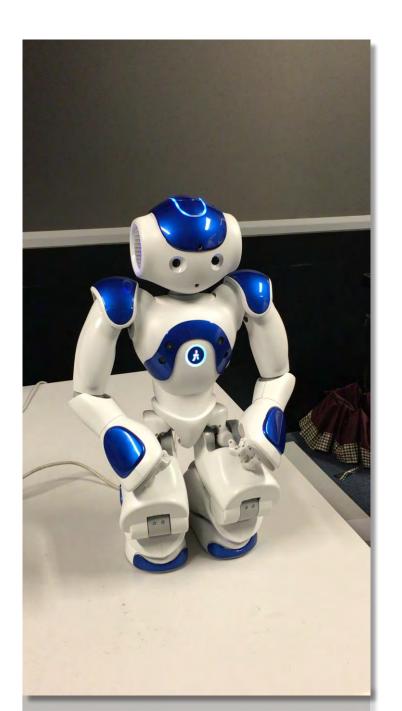
Dialog Robot

Through the dialogue system, computer information can be translated into natural language description, and human language can also be translated into computer information, so as to achieve human-computer interaction.

Reinforcement and transfer learning, can be used to solve the problem of dialogue system. Reinforcement learning can solve the problem of delayed feedback in multiple rounds of dialogue, while transfer learning can help target areas by using data from similar fields, which can solve the problems of traditional intensive learning data.

WHAT Lab

Domain Specific Knowledge Graphs

- Medical Knowledge Graphs

WeChat Crowdsourcing Platform
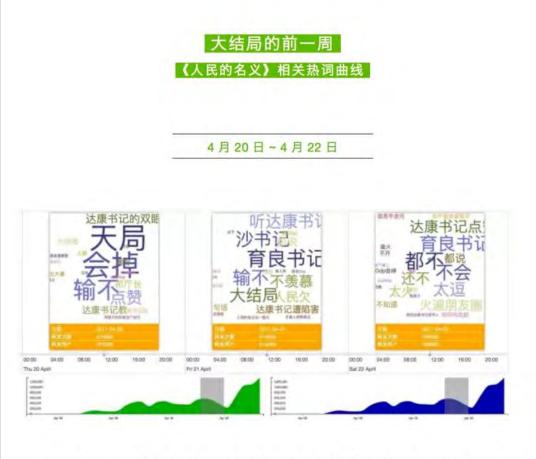
The WeChat Crowdsourcing Platform is designed and developed by WHAT Lab and WeChat team together. Researchers can publish crowdsourcing tasks on the platform and WeChat users can participate in and get monetary rewards. Different mechanisms for task assignment and answer aggregation are equipped and plenty of real tasks from HKUST and Tencent have been published and finished on the platform. It is both a useful tool for data labeling and an industry level crowdsourcing research environment.

WHAT Lab

WeSeer System: go online

WHAT Lab

The WeSeer system developed by WHAT Lab was deployed and applied to WeChat, Tencent for daily propagation analysis. The system enable to analysis how official public account article information propagate in WeChat platform from different perspectives, involving a 3D global overview, time-varying propagation view, community detection view, etc.

The Big Data for Bio Intelligence Laboratory (BDBI)

Donation by Mr. Raymond Chu: US $1 million

Devote to the development of advanced machine learning systems and promoting applications of machine learning in bio and genetic areas, aims to become a leading laboratory in the research of big data for biological intelligence and to bridge the knowledge gap between academics and practitioners.
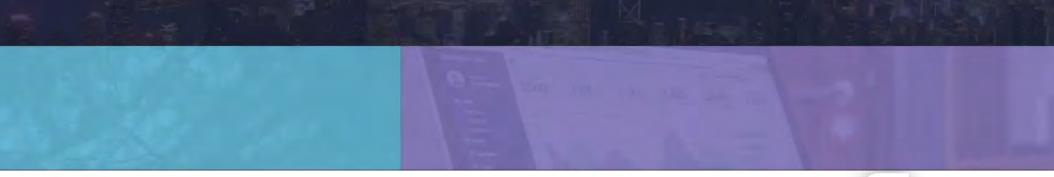
Smart Ridesharing

With the cooperation of ⬤ DiDi (the biggest online car-hailing company in Mainland China), we can utilize the huge amount of data generated by millions of drivers and customers to help the company improve the efficiency of their services and the user experience of both drivers and customers. We help DiDi to design smart vehicle dispatching strategies and dynamic pricing strategies such that the efficiency of the ridesharing service can be improved, and the overall profit of the platform can increase.

A fare price?

Smart City Lab

E-LEARNING

Move Academia towards "Evidence-Based Education":

Stage 1: Multi-Variant Model for Quality Measurement of Course Materials.

Stage 2: Pattern Discovery Algorithms & Outlier Detection Mechanism.

Objectives of the platform

- Effectively monitoring and directing the crowd in railway stations so that early warnings can be given on potential dangers.

- Ensuring smooth operation of railway transport system by predicting potential major equipment failure.

- The platform will cover a number of frontiers of big data research, including data integration, data analysis, human factors, optimization/visualization, transfer of learning, simulation and operational research.

Smart City Lab

HKUST- Ying Ding Education AI Lab

Ying Ding Education co. funded HK$5 million to establish a collaboration with BDI for founding an AI lab.

HKUST- Ying Ding Education AI Lab

The Lab focuses on developing collaborative programs for the purpose of strengthening educational research collaborations and development of blended learning initiatives.

- ✓ Development of Blended Learning Platform and Pilot Program
- ✓ Collaboration on Mainland Educational Activities
- ✓ Collaboration on Educational Data Analysis

Newly Established Joint Labs
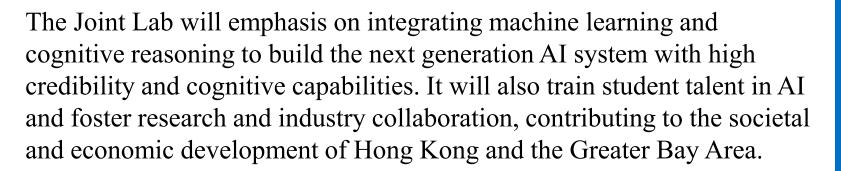
HKUST-NAVER/LINE AI Laboratory

NAVER

The lab aims to develop a comprehensive set of research and talent-development programs to pursue cutting-edge research for advancement of AI technology and enrich the learning experience for students.

HKUST-Xiaoi Robot Joint Lab on Machine Learning and Cognitive Reasoning

xiao-i 小i机器人

The Joint Lab will emphasis on integrating machine learning and cognitive reasoning to build the next generation AI system with high credibility and cognitive capabilities. It will also train student talent in AI and foster research and industry collaboration, contributing to the societal and economic development of Hong Kong and the Greater Bay Area.

Newly Established Joint Labs
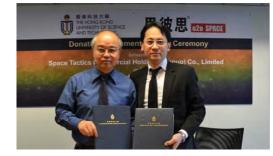
HKUST-Xunlei Joint Laboratory on Blockchain Technology

The Joint Lab aims to develop cutting-edge and influential blockchain technologies that are applicable to various industries and establish a high-performance blockchain ecosystem in the Guangdong-Hong Kong-Macao Greater Bay Area.

Digital Currency and Blockchain Research Lab

The Lab will support research and training of postgraduate / postdoctoral students related to FinTech and blockchain.

Health Data Analytics Lab
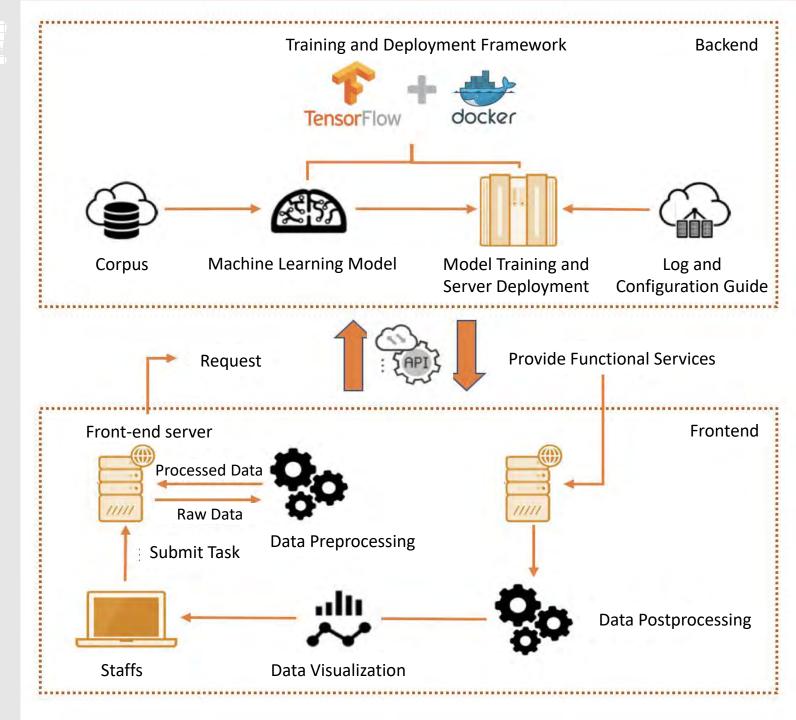
The Lab will support research related to data science and provide a platform for nurturing young researchers.

Guangdong Grid Co.
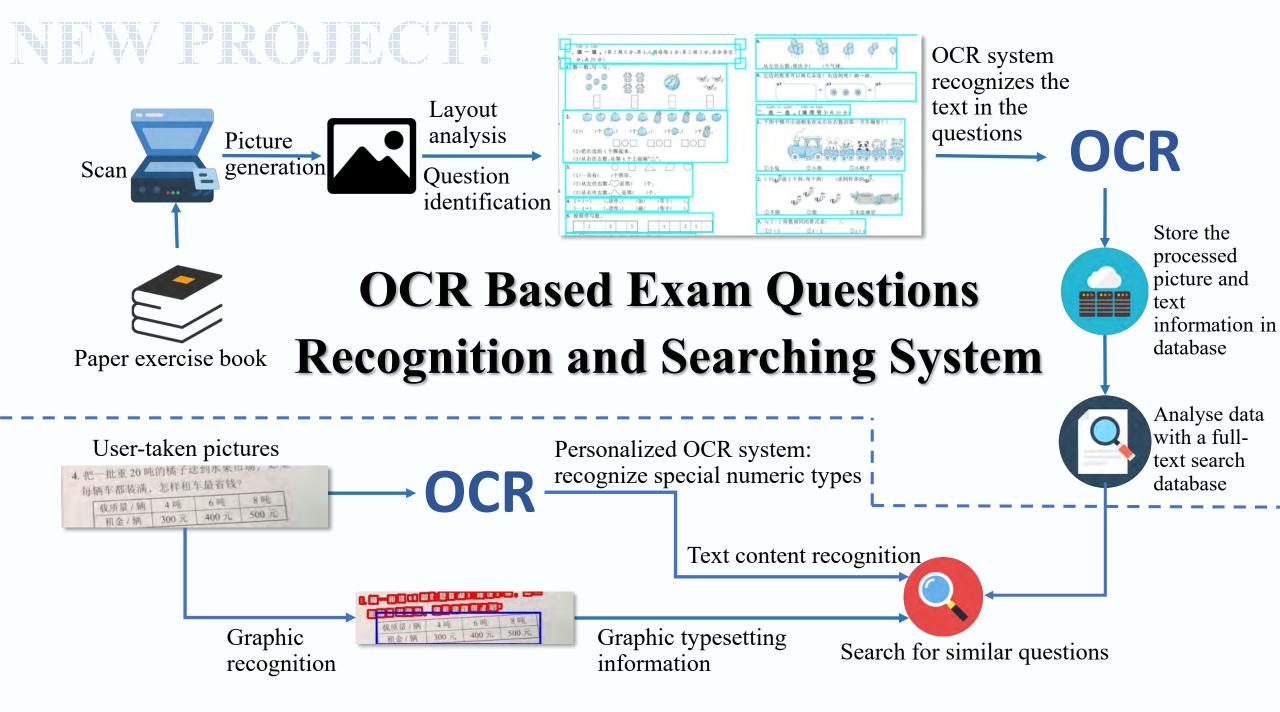
Intelligent Document Assistance System

- **New word discovery based on left and right entropy and internal solidification**
- **Correction of typos based on neural network**
- **Research on entity recognition model based on neural network**
- **Picture text detection and recognition algorithm**
- **Seal extraction and recognition algorithm**

NEW PROJECT!

OCR Based Exam Questions Recognition and Searching System

Scan

Picture generation

Layout analysis

Question identification

OCR system recognizes the text in the questions

OCR

Store the processed picture and text information in database

Paper exercise book

Analyse data with a full-text search database

User-taken pictures

OCR

Personalized OCR system: recognize special numeric types

Text content recognition

Graphic recognition

Graphic typesetting information

Search for similar questions

Big Data and
AI Day

BigDatathon

FinTech
Forum

Distinguished Lectures, Seminars, Workshops

Social Impact

Organize Distinguished Lectures, Seminars,
Workshops, Competitions, Forums to facilitate knowledge transfer

2019年7月16日 星期二 10:15AM
30°C

明報新聞網

HKUST and Xunlei Establish Joint Laboratory to Drive Innovation and Applications of Blockchain Technology

科大與迅雷建立聯合實驗室 推動區塊鏈科技創新應用

Xiao-i and HKUST Launch Joint Laboratory on Machine Learning and Cognitive Reasoning

科大伙內地AI龍頭 研發粵語聊天機械人

HKUST Establishes Laboratory on Big Data for Bio Intelligence

科大設大數據生物智能實驗室

香港致力打造大数据驱动的智慧城市

2016年06月29日12:42 来源：新华社

原标题：香港致力打造大数据驱动的智慧城市

HKUST Signed Framework Agreement with Digital China to Build Smart City Research Institute

Social Impact

BDI pursue to bring positive influence to the community
and lead the tread in top technology field

World Experts in Big Data and Artificial Intelligence Gather at HKUST to Share Insights into Future

26-05-2017

The Big Data Institute (BDI) of the Hong Kong University of Science and Technology (HKUST) today (Friday) organized its first Big Data and AI Day, playing host to a stellar assemblage of world top academics and industry celebrities in the realm of Big Data and Artificial Intelligence (AI), sharing information and insights into the future of this trendy field.

Since the establishment of the BDI in 2016, its first Big Data and AI Day drew a learned audience of over 500 guests, including local and overseas academics, leaders in the Big Data and AI-related industries, as well as students from various tertiary institutions in Hong Kong and abroad. The overwhelming attendance attested to the key role of HKUST's research in these fields.

Dr Tieniu Tan, Vice Minister of the Liaison Office of the Central People's Government in Hong Kong, officiated at the symposium. In his keynote speech on big visual data analysis, Dr Tam said, "Hong Kong is a great place for Big Data and AI, and Big Data and AI are a great hope for Hong Kong, making the place smarter and stronger."

Delivering the opening remarks, President Chan said, "Research into Big Data and AI is one of HKUST's strategic

Dr Tieniu Tan, Vice Minister of the Liaison Office of the Central People's Government in HKSAR (7th from right), HKUST President Prof Tony F Chan (6th from right), Vice-President for Research and Graduate Studies Prof Nancy Ip (7th from left), Dean of Engineering Prof Tim Cheng (5th from

HKUST Becomes the First University Partner Worldwide with NAVER/LINE to Set Up AI Lab

港科大聯手微信建「智能實驗室」

HKUST and WeChat Establish Joint Lab on Artificial Intelligence Technology

专访微信人工智能实验室：社交网络已成为人工智能的一个热点

Social Impact
BDI pursue to bring positive influence to the community
and lead the tread in top technology field

BIG DATA TO BIG DREAMS

Big data is the oil of 21st century, however, unlike the oil, its reserve grows exponentially every year

JOIN BDI, ignite your future

HKUST Big Data Institute