



# AI Education Solution

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# COMPANY INTRODUCTION



Established in March 2012, UBTECH ROBOTICS CORP LTD is a leading humanoid robots and smart service robots company in China.

Dedicated to the mission of 'bringing intelligent robots into every family, and making everyday life more convenient and intelligent', we have developed a full stack of humanoid robotic technologies independently. Based on our full-stack technologies, we have engaged in the research and development, design, smart production, and commercialization of smart service robots. We have established a smart robotic solution with hardware, software, service and content all integrated together, covering various industries such as AI education, smart logistics, smart wellness and elderly care, and business service.

We are one of the few companies which have developed full-stack humanoid robotic technologies in the world. Our full-stack technologies are a holistic combination of industry-leading robotic technologies (robotic motion planning and control technology and servo actuators) and our AI technologies (computer vision and voice interaction technologies), a number of integrated robotic and AI technologies (SLAM and autonomous technology, visual servo operation and human-robot interaction), and Robot Operating System Application Framework (ROSA), our proprietary robotics application framework.

We are also the first company in the world to accomplish mass production of small torque to large torque servo actuators with a torque from 0.2Nm to 200Nm. Our Walker is China's first commercialized biped life-sized humanoid robot. As of April 30, 2023, we have more than 1,750 robotic and AI-related patents, of which more than 350 are overseas patents.

We believe that the future of human lies in human-robot co-existence. With an unwavering commitment to innovations and technology, we envisage to bring UBTECH robots to every home and industry, marching towards a society where human and robots co-exist.

# Our Achievements

## One of the few Companies

to accomplish mass production of small torque to large torque servo actuators with a torque from 0.2Nm to 200Nm in the world

## One of the few Companies

to achieve the mass production and actual product application of multi-series servo actuators in the world

## 1st Company in China

to launch a commercialized biped-life sized humanoid robot in China

## China's No. 1

provider of education smart robotic products and solutions

1750+

patents  
worldwide

750+

invention patents  
worldwide

600,000+

units of  
robots sold

30+

product  
series

50+

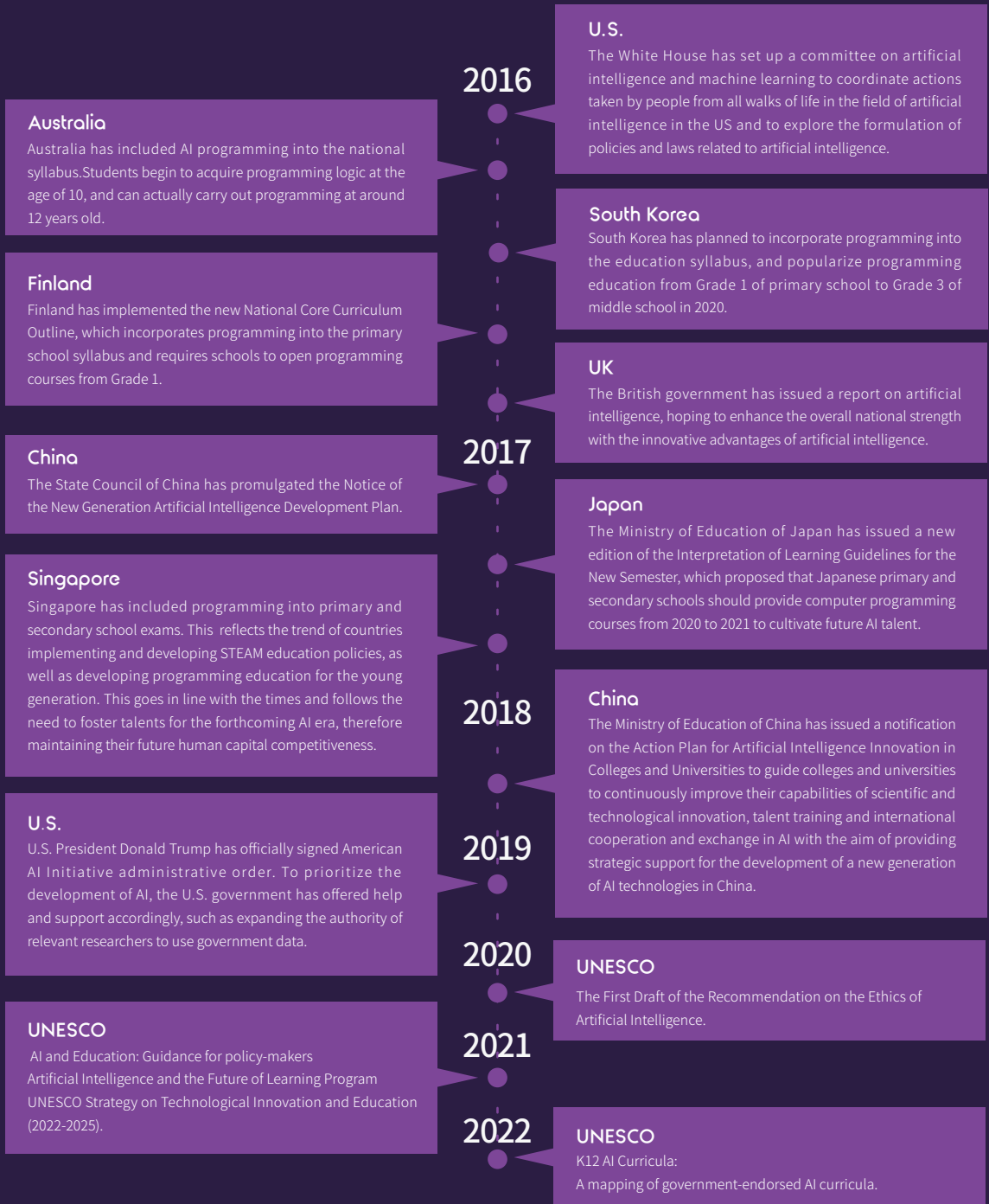
countries and  
regions sold in

Top 10

Vanguard of the Rise of  
Humanoid Robots by  
Analytics Insight



# GLOBAL TRENDS IN AI EDUCATION



The AI education application market has emerged and is expected to reach a market size of \$ 6 billion by 2024.

# The Impact of Artificial Intelligence Education on the Nation

The development of artificial intelligence education in a country can bring significant improvements across various dimensions:

## 01 Impact on Youth Scientific and Technological Literacy

### For K-12 students :

AI literacy popularisation, Programming/ Innovation/Logic thinking/Computing thinking/Problem solving/Hands-on ability etc, cultivation of Tech Literacy

### For Vocational/College Students :

AI development skills/maintenance skills/ testing skills/operation skills and cultivate industry talents

## 02 Impact on the Education

- Shaping a gradual pyramid technology talent cultivation structure
- Lays the cornerstone for the future technology talent development in the country
- Cultivate a team of artificial intelligence education teachers

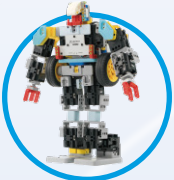
## 03 Impact on the Economic and Industry

- Technological Innovation and R&D
- Development of Emerging Industries
- Labor Market Transformation
- Promote the transformation of national industrial and economic structures

## 04 Impact on Society

- International Reputation and Competitiveness
- International Cooperation and Influence
- National talent competitiveness
- Social InclusionSocial
- Governance & Public Services

# AI EDUCATION SOLUTION



UBTECH is dedicated to the popularization of AI literacy for all citizens and the development of technical talents by fostering AI talent sinks into schools.

UBTECH has laid out a through-type AI education system from K-12 to colleges



Research Talent

**METHODS**

In-depth learning and research of professional knowledge and cutting-edge technologies in the industry Innovate AI technology.

**GOALS**

To lead the futuristic development and revolution.



Skilled Talent in Applicable Scenarios

**METHODS**

Learn the technologies of industrial AI & robotics Apply AI technology.

**GOALS**

To facilitate the industrialization and real-time application.



The General Public

**METHODS**

Popularize basic AI education Experience AI Technology.

**GOALS**

To understand and actively embrace the changes AI technologies bring to life and work.

Inspire AI interesting

Foster AI literacy

Continue to study AI major

Engaged in AI works

Shaping talent structure



# AI Talent Development Solution Framework

Scenario-oriented solutions to meet different levels of needs

**AI Center Solution**  
Deploy in main cities

**AI Lab Solution**  
Deploy in schools

**AI E-Learning Solution**  
Smart cloud platform for all



## Curriculum & Teaching Material System

- Systematic Curriculum Framework
- Interdisciplinary Integration
- PBL study with 5E pedagogy

## Teacher Training & Support System

- Three levels teacher training: Initial, Senior, Expert
- Online and offline integrated efficient service
- Technical support

## AI Hardware Matrix

- Diversified forms / Strong AI attributes / Open and scalable
- Designed for Educational Scenarios

## Assessment & Evaluation System

- Process Evaluation & Results Evaluation
- Student Learning Report & Teacher Competency
- Certification

## Software & Programming Tools

- Graphical programming / code programming / 3D simulation tool
- Open access capability, docking with ecological products

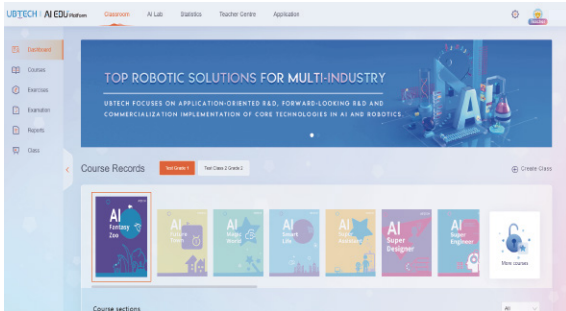
## Robotics Competition & Events System

- Authoritative event endorsement strategy / confrontation / task

## AI Education Platform

AI Teaching & learning tools / curriculum resources / products & user aggregation / project operation / AI education ecology

# AI Education Platform

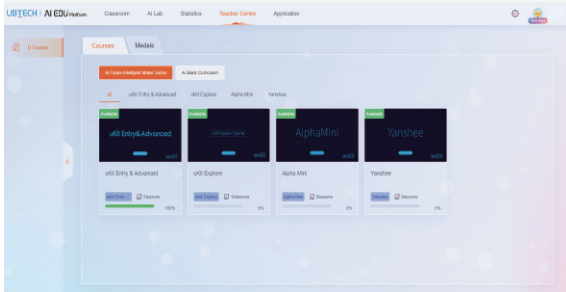
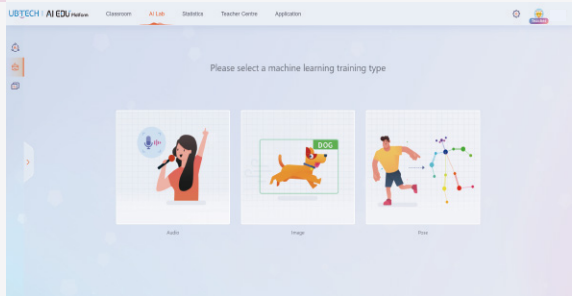


## Teaching Center

- Get Curriculum Resources
- Prepare for Class
- Have a Class
- Class Management
- Assessment and Evaluation
- Home-school Interaction

## AI Traing Center

- AI Training
- AI Knowledge Animation Film
- AI Mini Game

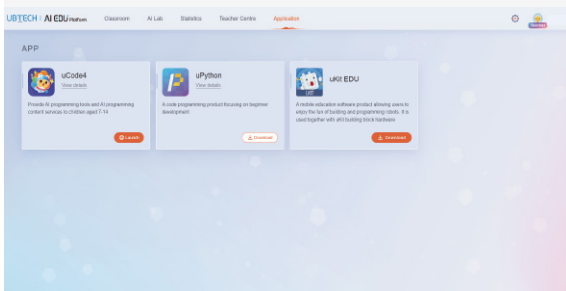
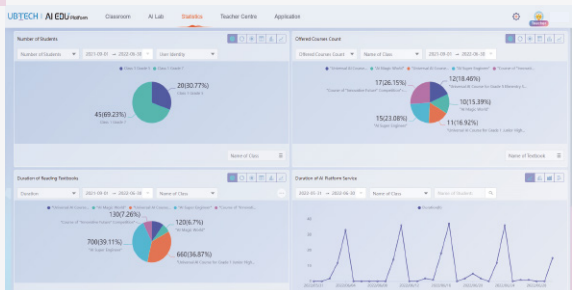


## Teacher's Developing Center

- Teacher Online Training
- Teacher Certification

## Academic Center

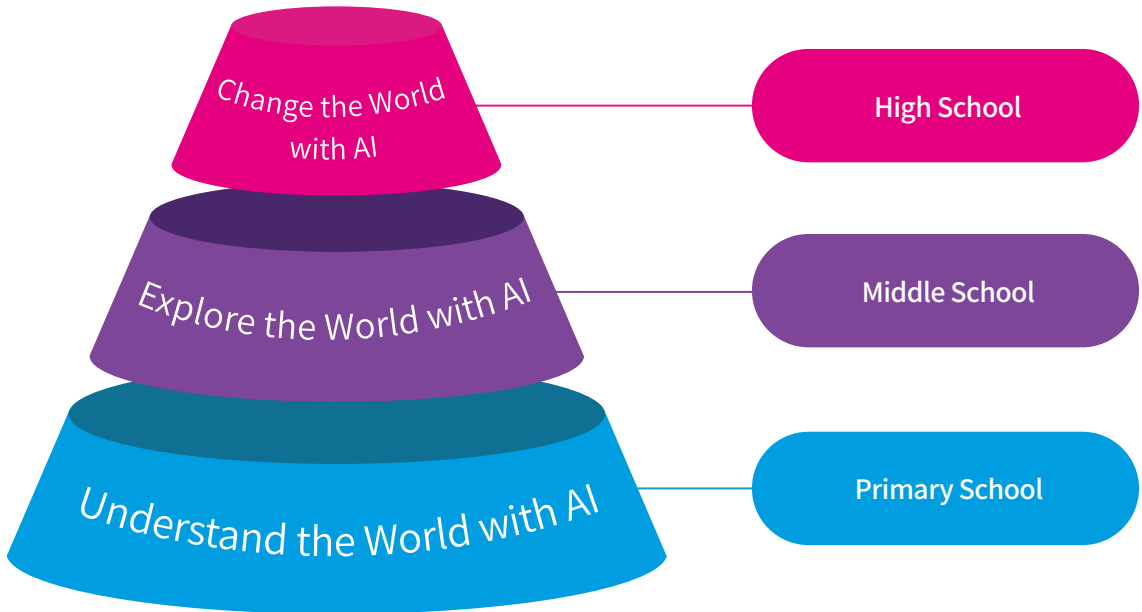
- Test AI Learning Outcomes for Students
- Provide AI teaching basis for teachers
- Driving AI Educational Assessments for Schools



## Programming Tools

- Graphical Programming-uCode
- Text Programming Tool-uPython

# Curriculum & Teaching Material System



## Primary School

- AI Fantasy Zoo
- AI Smart Life
- AI City Guardian
- AI Future Community
- AI Transformer Workshop
- AI Amusement Park

## Middle School

- AI Magic World
- AI Super Engineer
- AI Space Exploration

## High School

- AI Super Designer
- The Application and Exploration of AI

### Understand the world with AI

Curriculum for primary school includes 6 courses, which help students develop their AI knowledge, computational thinking skills, hands-crafting skills, and etc.

### Explore the world with AI

Curriculum for middle school includes 3 courses, which has deeper AI knowledge requires students not only learn some knowledge about AI, but need to apply in our daily life to try to solve some life issues.

### Change the world with AI

Based on interdisciplinary practice, RILP is a learning program focusing on actual problem environment. It includes the integration of actual enterprises problem scenarios, the guidance of professional researchers, as well as a top-class, innovative curriculum.

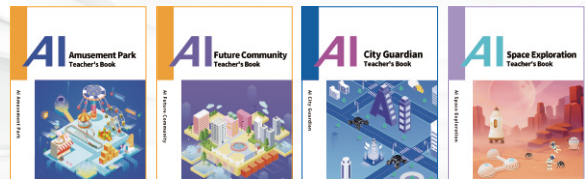
# Mapping of UBTECH AI Education Curriculum for K-12

Recommended Grades	Level	Curriculum Name	Hardware	Software	Programming Language
Primary School	1	AI Fantasy Zoo	uKit AI Controller	uKit EDU App / uCode	Graphical Programming
	2	AI Smart Life	uKit AI Controller	uKit EDU App / uCode	Graphical Programming
	3	AI Amusement Park	uKit AI Controller	uCode	Graphical Programming
	4	AI Future Community	uKit AI Controller	uCode	Graphical Programming
	5	AI Transformer Workshop	uKit AI Controller+uKit Development Board	uCode / uKit Explore APP	Graphical Programming
	6	AI City Guardian	UGOT	uCode	Graphical Programming
Middle School	7	AI Magic World	uKit Development Board	uCode	Graphical Programming
	8	AI Super Engineer	uKit Development Board	uCode	Graphical Programming
	9	AI Space Exploration	UGOT	uPython	Python
High School	10	AI Super Designer	Yanshee	Yanshee App / uCode / Python	Graphical Programming / Python
	11	The Application and Exploration of AI	Yanshee	Yanshee App / uCode / Python	Python

# Complementary Teaching Materials



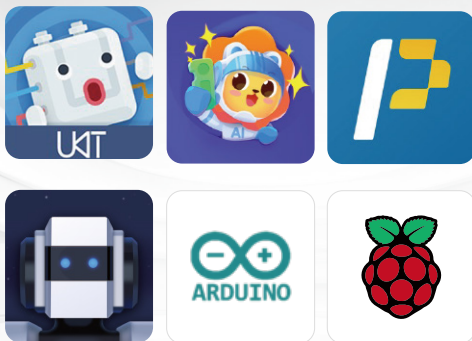
Student's Book



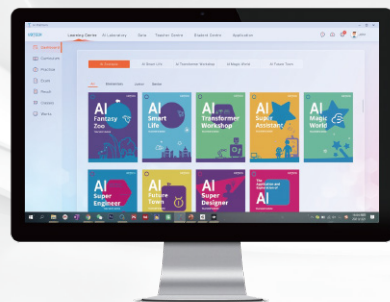
Teacher's Book



Evaluation Book

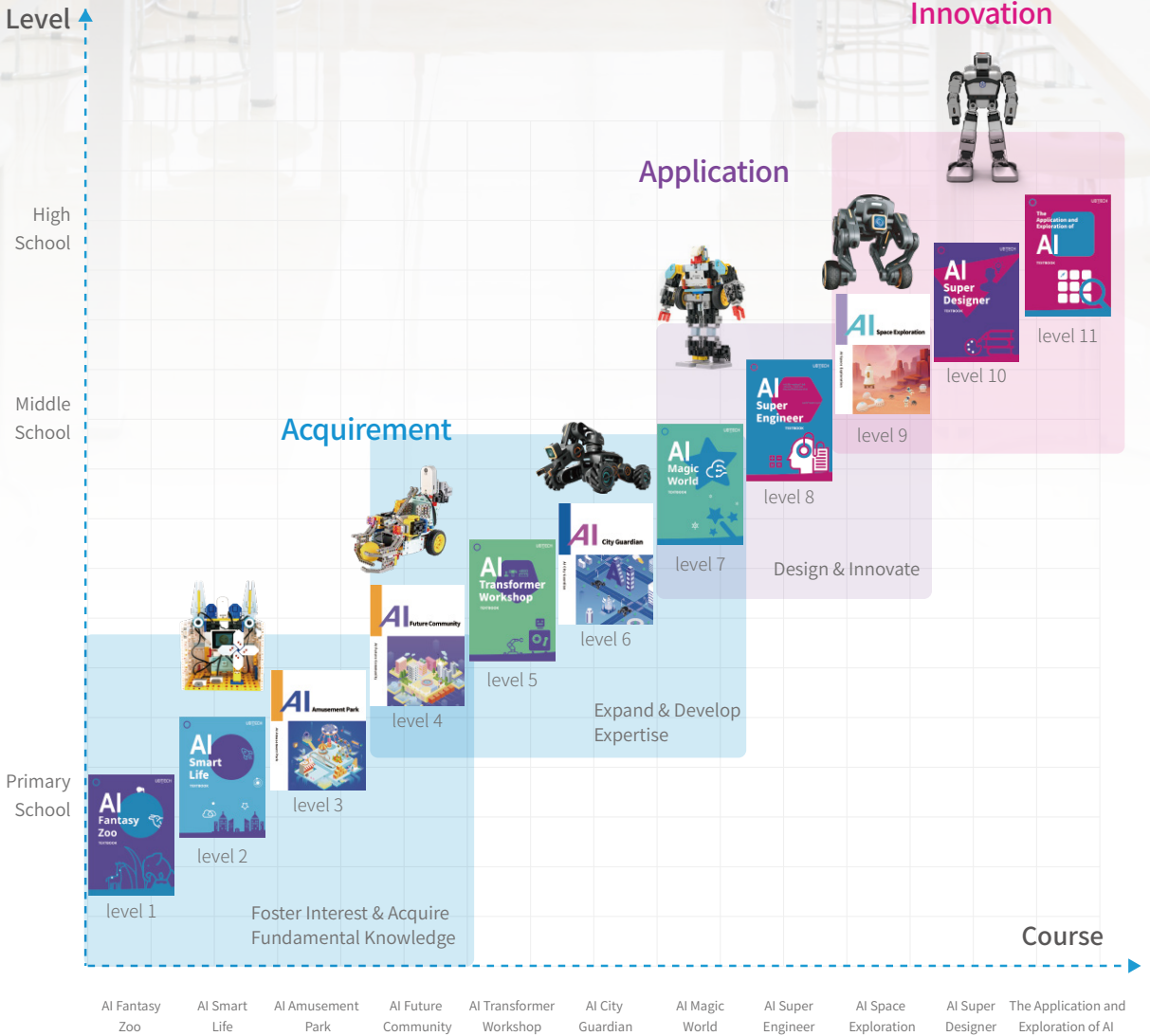


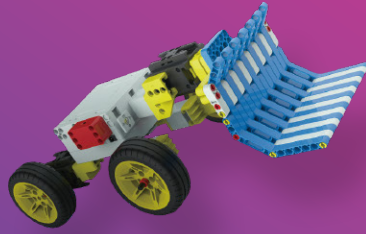
Software Kit



AI Education Platform

# AI Hardware Matrix

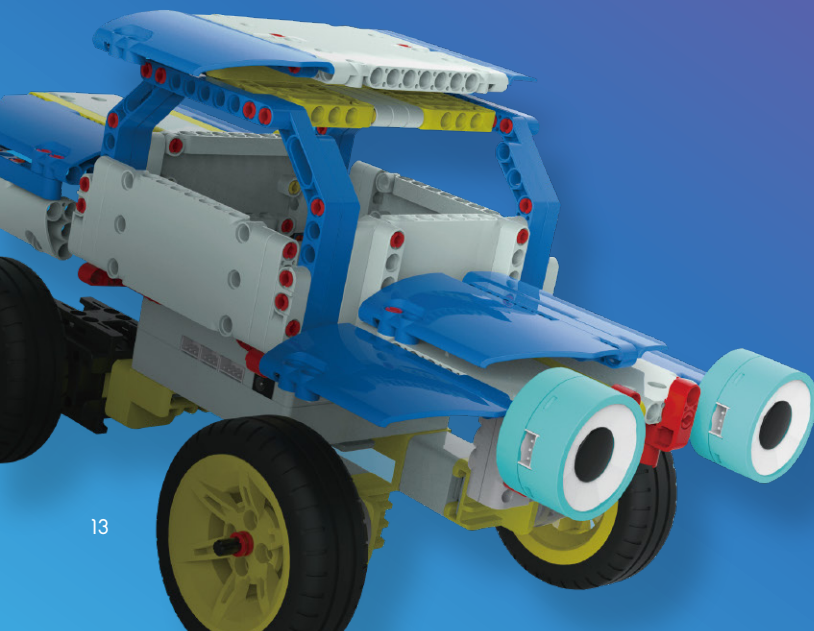




# UKTAI

## Unlimited uKit, Unlimited Creativity

- + Guidance in 3D dynamic building
- + PRP programming
- + Graphical programming
- + Motion Control
- + Project-based teaching
- + Smart devices for learning  
and application



# UKIT Unleash infinite creativity with uKit

	<h3>AI Fantasy Zoo Learning Kit</h3>		
	<h3>AI Smart Life Learning Kit</h3>		
	<h3>AI Amusement Park Kit</h3>		
	<h3>AI Future Community Kit</h3>		
	<h3>AI Transformer Workshop Kit</h3>		
	<h3>AI Magic World Kit</h3>		
	<h3>AI Super Engineer Kit</h3>		

- 30 class hours
- Primary School

- 11 official models(DIY available)
- 600+ components and parts

- 5 sensors
- 4 servos
- 1 uKit AI Controller

- 30 class hours
- Primary School

- 15 official models (DIY available)
- 1000+ components and parts

- 11 sensors
- 4 servos
- 1 uKit AI Controller

- 30 class hours
- Primary School

- 16 official models (DIY available)
- 600+ components and parts
- 1 Intelligent Camera Module

- 7 sensors
- 2 servos
- 1 uKit AI Controller

- 30 class hours
- Primary School

- 12 official models (DIY available)
- 400+ components and parts
- 1 Intelligent Camera Module

- 4 sensors
- 4 servos
- 1 uKit AI Controller

- 30 class hours
- Primary School

- 9 official models (DIY available)
- 900+ components and parts
- 1 uKit Development Board

- 8 sensors
- 16 servos
- 1 uKit AI Controller

- 30 class hours
- Middle School

- 6 official models (DIY available)
- 600+ components and parts
- 1 uKit Development Board

- 9 sensors
- 4 servos

- 30 class hours
- Middle School

- 10 official models (DIY available)
- 1100+ components and parts
- 1 uKit Development Board

- 7 sensors
- 16 servos



# UCOT

## Multi-mimetic Robot for AI Education

Versatile Builds | High-Performance Computing | Open Source System



### Fast Assembly for 7 Unique Robots

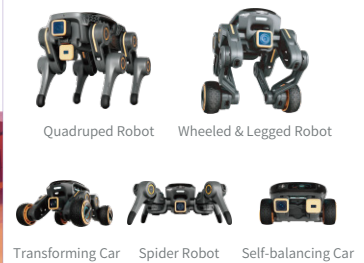
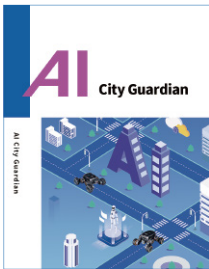
Modular Design \ Innovative Dial Lock \  
Two-minute Reconfiguration \ Imagination Inspired



## AI City Guardian Kit



## AI Space Exploration Kit



Topics **15**  
Class Hours **30**

Recommended for  
**Primary School/Grade5-6**

Topics **14**  
Class Hours **30**

Recommended for  
**Middle School/Grade7-8**

### Curriculum Description

Based on the problems that may be encountered in real life, the course constructs virtual story situations, guides the students to use AI technologies such as intelligent voice and machine vision to realize the various functions of UGOT to help the city to solve a variety of emergency problems and to cultivate students' problem-solving ability and social responsibility.

### Curriculum Description

With interstellar exploration as the background, the course integrates science and technology into science fiction story contexts, constructing virtual scenarios such as flight plans, lunar exploration, cave exploration, and Mars base. Through these topics, the course guides students to use intelligent speech, machine vision and other artificial intelligence technologies to realize the functions of UGOT and help scientists to solve various urgent problems encountered in the process of interstellar exploration, and cultivate students' problem-solving ability and sense of social responsibility.

### AI Skills and Competency Literacy

- Human-Computer Interaction
- Intelligent Speech
- Machine Vision
- Information consciousness
- Computational thinking
- Digital Learning and Innovation

### AI Skills and Competency Literacy

- Human-Computer Interaction
- Intelligent Speech
- Machine Vision
- Information consciousness
- Computational thinking
- Digital Learning and Innovation

## Raspberry Pi + STM32 Structure

Detachable modular design



## Stereo Speaker + Highly Sensitive MIC

Intelligent voice recognition and interaction

## Sensor Application

Collect data accurately and perceive the world

## 8MP Camera and FPV Supported

Intelligent visual recognition and visual tracking  
View the world in FPV (first-person view) mode

## Extendable Interface

Compatible with various sensors and peripheral devices

## 17 Anthropomorphic Servo Motors

Bring smooth and life-like movements



## The sensors below are supported:

- Infrared Sensor •
- Capacitive Touch Sensor •
- Pressure Sensor •
- Temperature & Humidity Sensor •

Various programming languages, such as Python, C/C++, Java, Blockly, Perl.

User friendly App is available on both iOS and Android devices.



# Infinite Raspberry Pi Robot Infinite Maker Possibilities



High School  
(senior) +University



17 Servos



Gyroscope



Toolkit



60 Class Hours



From Python  
Programming to AI research



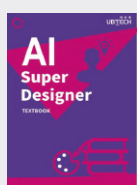
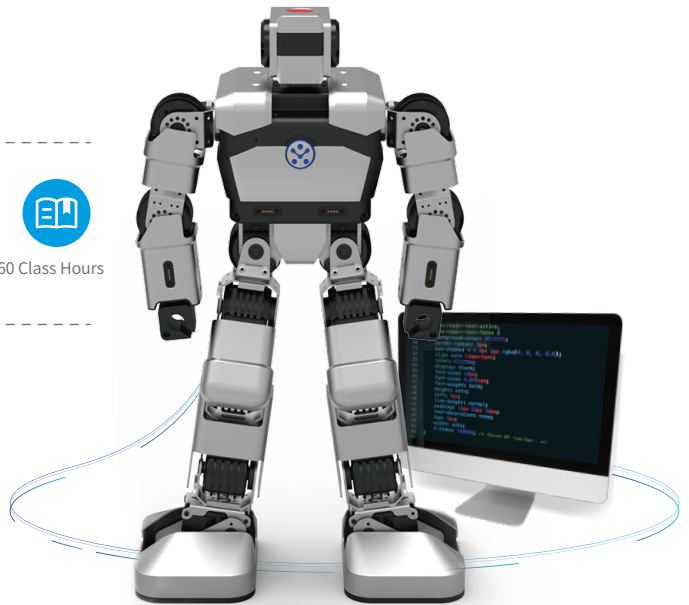
Open Source  
Platform



AI & Robotics Application  
and Development



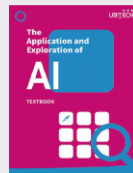
Diverse Extensible  
Interfaces



- Topics **14**
- Class Hours **30**
- Recommended for  
High School /Grade10-11

## Curriculum Description

Through this class, learn the basics of Python related algorithms with the support of Yanshee. Use typical cases in life as examples to guide students to think of algorithms and learn basics of grammars, sorting method, recursion operation, binary tree, greedy algorithm and other algorithms. Learn the Python algorithms to broaden students' thinking and vision. Stimulate students' interest in algorithms, and cultivate an attitude of careful study.



- Topics **12**
- Class Hours **30**
- Recommended for  
High School /Grade11-12

## Curriculum Description

Learn and explore the AI field by AI applications in various industries and sectors. Through this class, understand the development and principle of AI technologies and the applications of the AI technologies in society and life. Enable students to understand how AI helps people improve working efficiency and living quality based on typical applications of AI, and guide students to think of and learn the basics of AI, including study fields of AI, machine learning, and artificial neural network. By looking to the future development of AI, image the future society and broaden the thinking and vision of students. Motivate students' interest in AI and help them establish a correct view of scientific and technological application.


### AI Core Literacy and Skills





Face Recognition	Speech Synthesis	Machine Learning
Sensing	HMI	Technology and Algorithm


### AI Core Literacy and Skills





Neural Network	Machine Learning	Sensing
HMI	Technology and Algorithm	Social Responsibility


# Software and Programming Tools





 **uKit Edu APP**  
Android iOS

-  Graphical Programming
-  PRP Pose-record-play
-  Remote Control
-  3D Building Guidance

 **uCode**  
Windows Apple

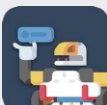
-  Graphical Programming
-  AI Hardware Open Platform
-  Upload Mode for Advanced Programming
-  3D Building Guidance



 **Yanshee APP**  
Android iOS

-  Graphical Programming
-  PRP Pose-record-play
-  Remote Control
-  Centralized Control

 **uPython**  
Windows

-  Python Programming
-  Code Completion
-  Software and Hardware Interaction
-  Visual Library Management

 **uKit Explore**  
Windows

-  Graphical Programming  
C/C++ Programming
-  Import Arduino IDE  
C Language Code  
Programming

# Teacher Training & Support System

Implement AI teacher training at different levels

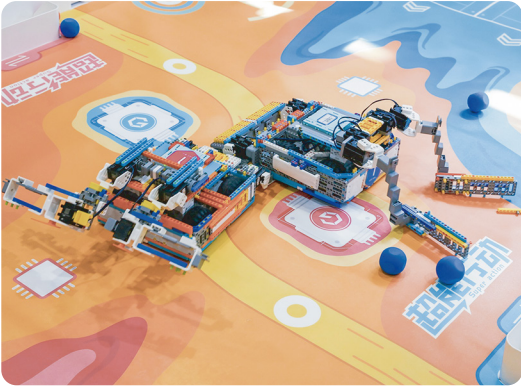


# Assessment & Evaluation System

Provide scientific basis for promoting digitalization and quality monitoring of AI education

AI Education evaluation	Formative assessment	Summative assessment	School AI education data panel
<b>Target</b>	<p><b>For students</b> : tracking the progress and performance, guiding personalized learning</p> <p><b>For teachers</b> : tracking teaching progress, precisely teaching</p> <p><b>For schools</b> : data-based monitoring, educational decision-making</p>	<ul style="list-style-type: none"> <li>• Test AI Learning Outcomes for Students</li> <li>• Provide AI teaching basis for teachers</li> <li>• Driving AI Educational Assessments for Schools</li> </ul>	<p>Dual dimensions of teacher &amp; students Real-time dynamic visualization</p>
<b>Method</b>	AI Platform Course Process Data Acquisition Evaluation(Completion of works, quizzes in class, etc.)	AI platform micro-certification assessment(objective questions and programming task questions)	
<b>Output</b>	AI Academic Evaluation Report 	AI Level Certification Report 	

# Robotics Competition and Events System



Robo Genius Artificial Intelligence and Robotics Global Challenge is UBTECH's growth platform for robotics and AI education for young people. It enriches their learning of AI and robotics through competitions, experiences, and other activities. It includes official and external competitions in robotics, AI, online programming, 3D virtual simulation, etc. This provides multidimensional support for comprehensive student development.

**50+**

Participating cities  
worldwide

**170+**

Number of events  
in a year

**46,000+**

Number of  
players

**23,000+**

Number of  
teams



# Scenario-Oriented Solutions

"Do not go where the path may lead, go instead where there is no path and leave a trail."

-Ralph Waldo Emerson, Poet

"别去道路通往的地方，往没路的地方走并留下足迹。"

-拉尔夫·沃尔多·爱默生，诗人



## AI Center Solution

Deploy in main cities



## AI Lab Solution

Deploy in schools



## AI E-Learning Solution

Smart cloud platform for all



# Scenario 1: AI Education Center Solution

As the international hub for AI talents in a city, it centralizes resources for schools, universities, enterprises, formulate and implements national AI training programs, raises the achievement by organizing high-level AI events. It reinforces the image of “AI city”, expanding the global vision and influence of the country.



## AI Experience

### Academic Center

- Exhibition
- Activities



## AI Training

### AI Training Center

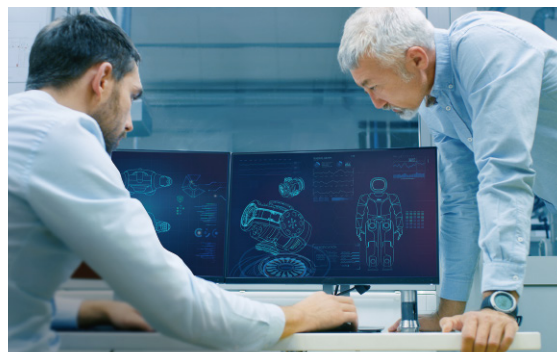
- K-12 AI training
- Teacher's training
- Practical training
- General training



## AI Innovation

### AI R&D Center

- Shared R&D platform with equipment & technical support
- Academic research and product innovation



## AI Exchange

### AI Event Center

- AI competition
- AI conference

## Scenario 2: AI Lab Solution

The AI Labs built in schools are equipped with curriculum recourses, hardware, software, teaching platform, etc. The teachers are well-trained and prepared for implementing AI courses in their own schools, under the guidance of the policy to promote and insure AI education nationwide.



### K-12 School Labs

#### Academic Center

- Curriculum
- Equipment
- Platform
- Competition...



### Vocational School Labs

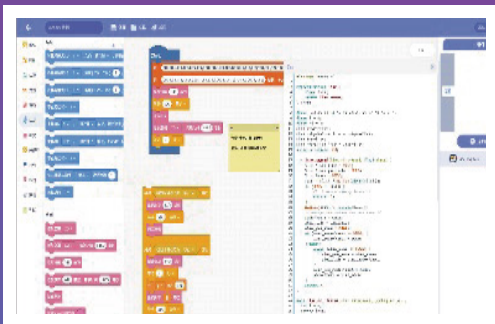
#### AI Training Center

- Curriculum
- Equipment
- R&D platform
- Practical training
- Certification...

## Scenario 3: E-learning Platform Solution

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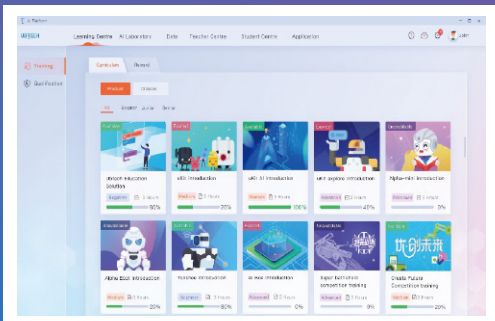
A multi-dimensional AI education and creation platform integrating learning, teaching, and creating.



### Learning

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- Systematic digital AI curriculum
- 3D immersive self-driven learning scenarios
- Programming tools with low coding difficulty and strong AI attributes



### Teaching

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- Online teacher's training programs
- Rich AI digital teaching resources
- Virtual class videos & animations
- Course creating & editing tool
- Student progress evaluation & analysis system



### Creating

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- 3D scenario designing tools
- Graphic programming tools
- Text programming tools
- Virtual test & competition field
- Uploading & sharing platform

# AI EDUCATION CASE

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# AI Education Global Network

UBTECH has global AI education networks in more than 40 countries across regions including America, Europe, Asia, Africa, Australia.



# UBTECH AI Education Case – America

UBTECH AI Future Intelligent Maker, the systematic curriculum were selected by the academic committee as a sample of case study. UBTECH AI Education Program has been deployed in JUAB junior high school , ALLEN ISD STEM center etc. in Los Angeles.



# UBTECH AI Education Case - Singapore

In collaboration with IMDA, UBTECH has brought the AI Education to local schools through the 'Lab on Wheels' and 'Values in Action' program, served more than 110,000 students over the years.



Intelligent Robots  
Enlisted in Singapore AI  
Popularization Program



# UBTECH AI Education Case –South Korea

300 pre-schools in Seoul City South Korea had deployed UBTECH's Alpha Mini robot for AI Education.



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# The Guardian

For 200 years

News Opinion Sport Culture Lifestyle

World Europe US Americas Asia Australia More



## South Korea

# South Korea trials robots in preschools to prepare children for high-tech future

The 25cm-tall robots that sing, dance and do kung-fu used as teaching aids in 300 childcare centres across Seoul

Agence France-Presse

Thu 25 Nov 2021 05:10 GMT



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