

# Technology boosts smart living Big data is everywhere

# Reasons for choosing a career in big data engineering

- Careers related to Big Data are one of the most promising job markets in the 21st Century.
- Staying ahead of big data trends is like being able to tell the future!
- Managing big data allows you to have a clearer picture of things.
- Analyzing big data can improve companies ' operations and services, and is becoming essential to compete in the marketplace.
- Businesses using big data are able to make their decisions more effectively and wisely than those using traditional forecasting. .

## Reasons for choosing a career in smart product development engineering

- 1 The development of smart products has received considerable support and resources from both the marketplace and the government.
- Smart products can create humanoid robots with positronic brains and amazing dexterity with the help of Artificial Intelligence, Computer Vision, Speech Recognition, Mobile Technology, and more.
- 6 There are always bright prospects developing and new markets growing within in smart industry. World class companies have made huge investments in robotic development platforms.
- The demand for smart product development engineers is growing due to the global trends in smart technologies.
- There is a widespread and growing trend of the use of smart products to assist in human lives and services.

# **Educational Objectives**

Welcome to Department of Technology for Smart Living! Our objectives are to cultivate students ' practical skills. There are two sub-divisions in our program: Smart Product Development and Big Data Management.

In the field of **smart product development**, students will be trained to develop professional skills in information technology and mechatronics. We aim to cultivate the ability to apply theory to practical use.

In the field of **big data management**, students will gain understanding of analyzing and managing big data, and will develop their abilities of solving management problems with data analysis tools.

#### **Required Qualities**

Traits necessary for our department:
Passion for technology and future applications
Curiosity and eagerness to learn more
Willingness to take up challenges and try new things
Creativity
Logical reasoning

#### **Special Features of Teaching**

We have restructured traditional educational methods to provide students with a more flexible learning experience. Students can freely select interdisciplinary courses from other colleges and departments in Huafan University according to their own interests.

# Industry Trends and Career Development

#### **Smart Speakers**

A smart speaker is a device integrated with a virtual assistant that can control home appliances and other products using voice commands. The smart speaker market is worth USD 8.4 Billion in 2019 and is expected to reach USD 15.6 Billion by 2025. The top four leading vendors in the global smart speaker market are Amazon, Google, Alibaba Group, and Baidu. Students can choose to pursue their career in the smart speaker industry.



#### **Robotics**

With growing industrial and daily needs, the development of robotics is onthe rise. The possible applications of robots to assist human beings and solve problems in the workplace are widespread. For instance, industrialrobots can be used in the manufacturing industries, including the automotive industry, electronics, machinery, chemicals, foods, and more. Service robots can help people in the fields of surgery, security patrolling, domestic services, education, entertainment, and so on.















#### What is FinTech?

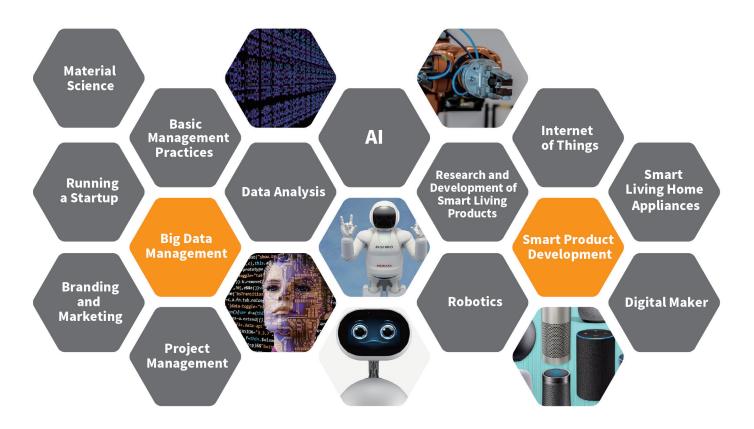
Financial technology (FinTech) is an industry that aims at improving financial services with the use of technologies. It is utilized to help companies to find solutions to traditional financial enterprises and systems that are obsolete.

Do you know who the top ten FinTech companies are, and what their business models are? Have you heard of Ant Financial? If you haven 't, you should have heard of the payment giant established by the Alibaba Group, Alipay! In addition to Alipay, Alibaba Group has also developed a private credit scoring and loyalty program system, Sesame Credit.

## **Honeycomb Modular Courses**

The department introduces the "honeycomb" modular course structure. Undergraduate students must earn at least 128 credits in order to graduate, but with our honeycomb modular structure, students can freely select modules (a module is a set of courses on a specific topic). As a result, every student will have a unique honeycomb structur

Every honeycomb represents a course module, and each module is a complete block within a thematically defined specialty. When students have completed different modules, they can connect the modules and integrate knowledge across fields.



#### **Advantages of Modular Courses**

Modular courses are more diversified and flexible, and students can select courses according to their own interests, capabilities, and personal needs.

### **Curriculum Guide and Course Schedule**

Through honeycomb modular courses and PBL thematic learning, we emphasize the integration of theory and practical application.

The department hosts an exhibition every year, providing students with the stage for showcasing their achievements. This activity can also enhance students ' resumes, which is helpful for pursuing their careers.

#### **First Year**

#### **Second Year**

#### **Third Year**

#### **Fourth Year**

**Basic Math and Program Design** 

**Circuit Implementation** and Design

**Data Science** 

**Robotics Design** 

**Digital Maker** 

**Management Practice** 

ΑI

Smart **Manufacturing Design** 

**Internet of Things** 

**Branding and Marketing Management** 

**Running a Startup** 

Big data analysis

**Research and Development** of Smart Living Products

**Project Management** 

**Smart management** and applications

Off-Campus Internship **Vocational Training** 

Software used: Inventor2, Arduino, MatLab, Mathematica, C , C ++, SolidWorks, RStudio Devices used: CNC, 3D Printer, laser engraving Software used: ROS Industry, SmartCam, TracePro, SolidCam

**Products: Speakers, Robotics, Smart Living Products for Seniors, Smart Living Products** for Children

Software used: Scratch, Raspberry Pi, Python, Jupyter, MultiSim, Tensorflow, Keras, OpenCV, Adams

























# **Interdisciplinary Learning**

People with T-shaped skills (specialized skills with general knowledge in other disciplines) or Pi-shaped skills (broad mastery of general knowledge and two or more areas of expertise) are the most desirable types of employees.

In the future, having only one specialty or area of expertise is not enough. We must enhance our ability to adapt to the future by continuing to learn. Since industries are changing, education should also undergo some changes.

The department adopts a curriculum design embracing cross-field integration and thematic learning, allowing students to develop multiple skills like Arduino to combine artificial intelligence, the Internet of Things (IoT), applications and other technologies to create creative, practical smart products.

#### Progress Scholarships - Challenging yourself and surpassing your limits

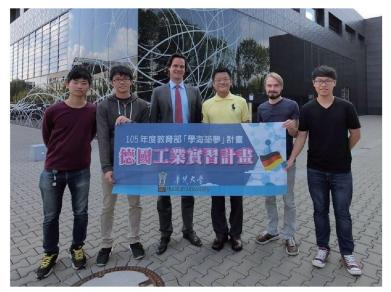
We encourage students to plan for their future and careers, to challenge themselves, and to surpass their limits with the aim to gain scholarships.

Students who make progress in their Chinese and English language skills, information skills, or academic performance, and those who have an achievement in sports, extracurricular activities, or public participation will be awarded.

# Overseas Internships and International Exchange Programs

Linking up with the world and broadening world views, we encourage all students to study abroad. Currently, four out of ten students study abroad. In the future, more than half of the students can apply for our exchange programs.

During 2015 to 2019, 94 students completed their overseas internships in Germany, Japan, Vietnam, Philippines, Malaysia, Mexico, and more.





# **Creative Workshops**

To satisfy the needs of PBL courses, the department has established 8 professional spaces, two of which are co-creation workshops. Combining these with technologies such as VR, wearable devices, Internet of Things, and big data, these workshops are sufficient to cover the needs of license training or creative practices, such as making robots, speakers, drones, smart coffee roasters and other products.





