2018

Self-discipline
Social Commitment

The Brief Introduction of

TSINGHUA UNIVERSITY

Department of Computer Science and Technology

Photo by Li shangyuan

History

Established: 1911

National Tsinghua University: 1928

Graduate School: 1929

University Mottos :

Self-discipline, Social Commitment

University Maxim :

Actions Speak Louder than Words

20 Schools and 57 Departments

- School of Architecture
- School of Civil Engineering
- School of Environment
- School of Mechanical Engineering
- School of Aerospace Engineering
- School of Information Science and Technology

- School of Materials Science and Engineering
- Dept. of Engineering Physics
- Dept. of Chemical Engineering
- School of Life Sciences
- School of Medicine

Covering disciplines in science, engineering, literature, art, history, philosophy, economics, management, law, education, and medicine.

Faculty Number:

* Faculty :3414
* Professor:1353
* Fellows of the Chinese Academy of Sciences: 45
* Fellows of the Chinese Academy of Engineering: 33
* IEEE/ACM Fellow: >100

Diverse student body:47201

* Undergraduate: 15570
* Masters Students:19311
* Ph.D.Candidates:12320
* International Studnets:3472

Well Known Alumni

Campus Map

- Garden-like campus

- Situated on former imperial gardens of the Qing Dynasty

- Total area of nearly 400 hectares

- Completed construction > 260,000 m^2

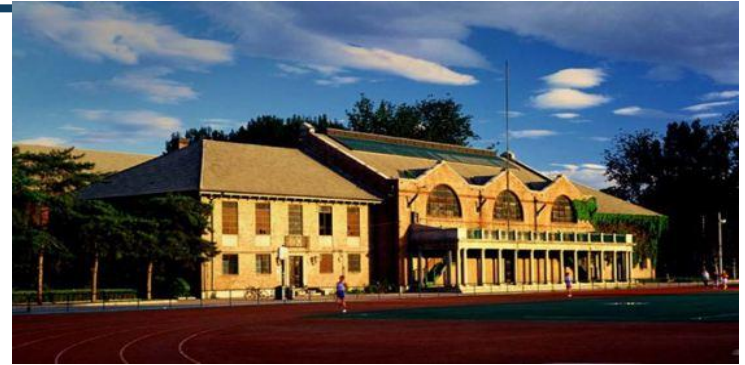# Facilities—New Concert Hall and Traditional Auditorium

Facilities—Art Museum

Facilities—Sports

Welcome to the Department of Computer Science and Technology (THCST)

Mission and Goal

Our goal is to build a world first-class computer science research and teaching institute…

"The Computer Science and Technology Department of Tsinghua University has become a world-class computer science research and teaching institute"

By international assessment experts in 2010

Evolution of THCST

The computer science major was established

Renamed to Department of Computer Engineering and Science

Network Research Center was established

School of Software was established

Institute of Network and Cyberspace

1956

1979

1994

2001

2012

1958

1984

2007

钟士模

Prof. ShimoZhong, 1st Dept. Head, Ph.D. from MIT, 1947

Department of Automatic Control was set up with computer science as one of its majors

Renamed to Department of Computer Science and Technology

Institute for Theoretical Computer Science was established
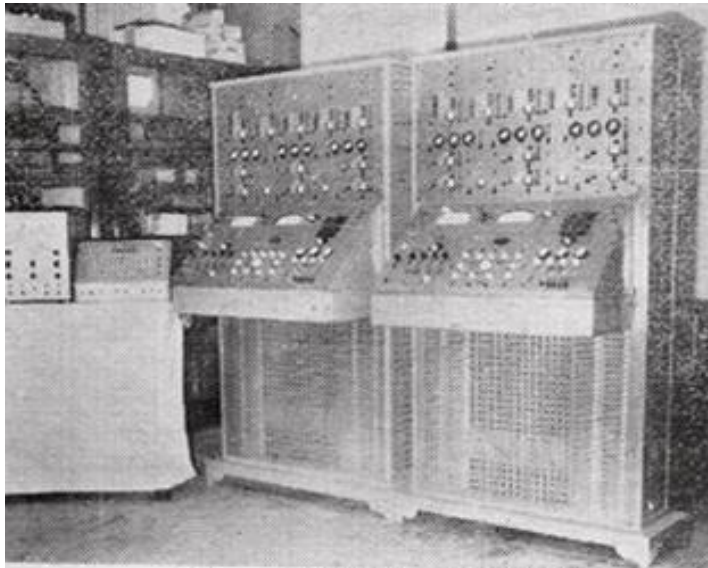
Milestone—1950s

* In 1958, the nonlinear analog computer model 551 was built.

* In 1959, the tube-based digital computer model 911 was launched and put into operation in 1964.

红旗-551型非线性电子模拟计算机

The nonlinear analog computer model 551 (1958)

The tube-based digital computer model 911 (1959)

Milestone—1980s

* **The first IBM compatible micro computer in China**, 0520-C, jointly developed by Tsinghua, Great Wall Computer Corp. and the 6th Institute of Ministry of Electronic Industry, was put into massive production.

* An Apple compatible micro computer CEC-1 for high school and primary school students was developed at Tsinghua and over 130,000 units were produced.
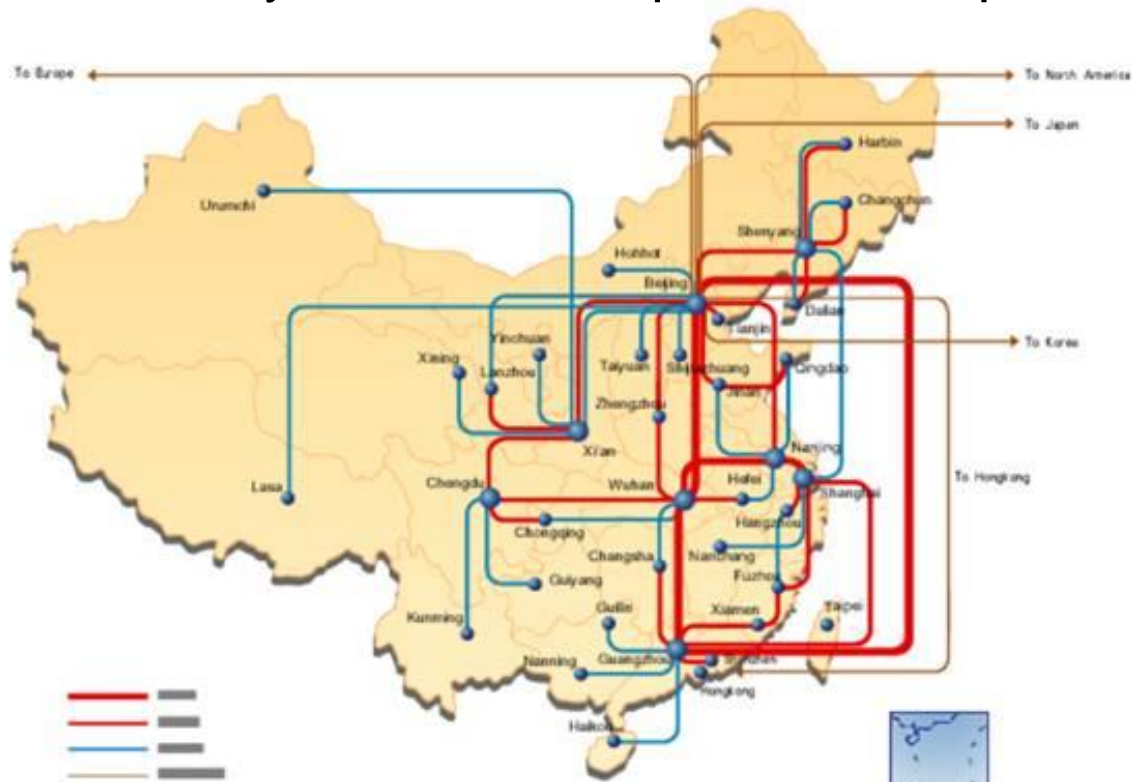

0520C-H (1986)

CEC-1 (1986)

Milestone—1990s

* In the 1990s, CERNET, the largest national education and research network in the world was built. As the driving force, Tsinghua University led its development and operation.

CERNET Topology (1994)

Ranking in China

No.1 CS Major in China

1996	🏆	**No.1 CS major in China Discipline Ranking**
2002	🏆	**No. 1 in three evaluation terms in China Discipline Ranking**
2006	🏆	**No.1 CS major (Full mark) in China Discipline Ranking**
2012	🏆	**No.1 CS major in China Discipline Ranking**
2012	🏆	**No.1 SE major in China Discipline Ranking**

Ranking in the world

Best Global University for Computer Science

Quacquarelli Symonds World University Rankings

#1	**Massachusetts Institute of Technology**	**100** Subject Score
	United States Cambridge, MA	
	#2 – Best Global Universities	
#2	**Tsinghua University**	**98.2** Subject Score
	China Beijing	
	#57 (tied) – Best Global Universities	
#3	**Stanford University**	**96** Subject Score
	United States Stanford, CA	
	#3 – Best Global Universities	
#4	**Nanyang Technological University**	**95.3** Subject Score
	Singapore	
	#74 – Best Global Universities	

Institutes

* Institute of High- Performance Computing

* Institute of Computer Network

* Institute of Computer Software

* Institute of Human-Computer Interaction and Media Integration

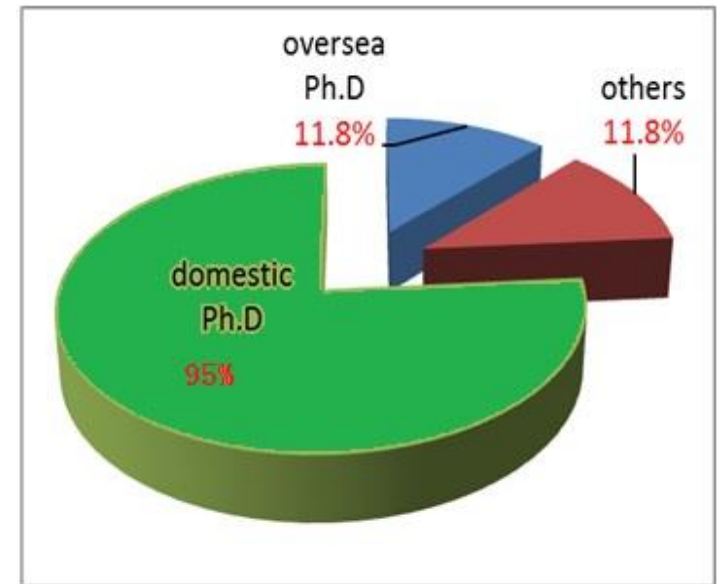* State Key Lab of Intelligent Technology and Systems

Faculty Statistics

* **97 faculties and 21 staffs**
    - 4 members of Chinese Academy of Science/Engineering
    - 42 full professors
    - 47 associate professors
    - 6 IEEE Fellows

* **95% of faculties have PhD degree**
    - 11.8% have oversea Ph.D. degree

* **Over 50% have oversea working experience of over half a year**

Research Areas

|	
☐ **Next-Generation Internet**	☐ **Information Security**
☐ **High Performance Computing and Services**	☐ **Data and Knowledge Engineering**
☐ **Software Engineering**	☐ **Intelligent Information Processing**
☐ **Computer Graphics and Multimedia**	☐ **Pervasive Computing and Human-Computer Interaction**

Research Highlights
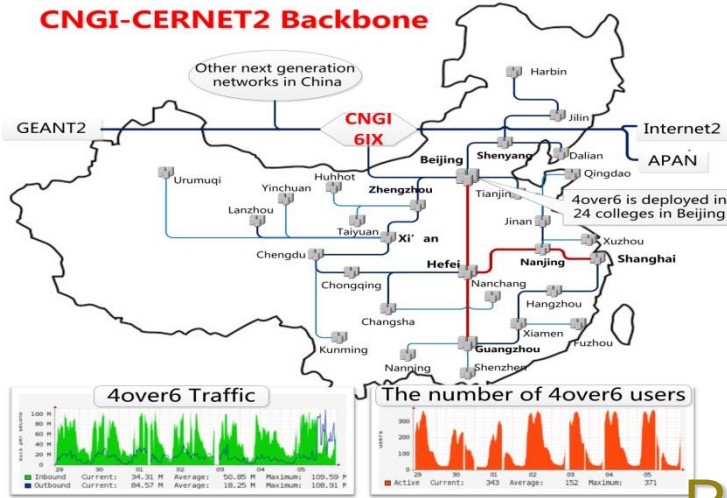
CNGI-CERNET2 Backbone

Cernet

Run the No.1 HPC in the world
(Sunway Taihu Light :125.436PFlops)
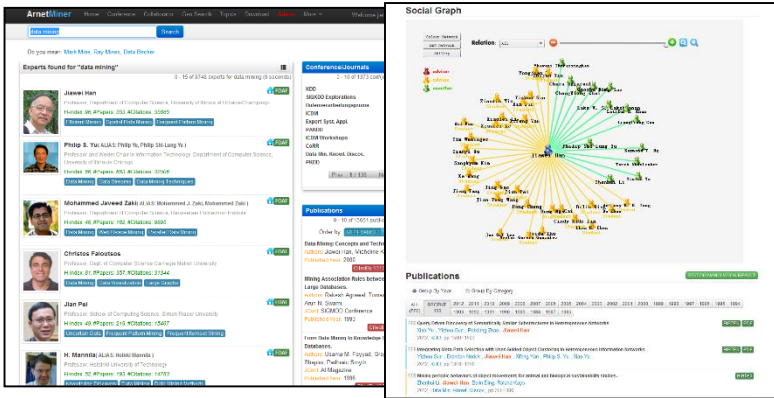
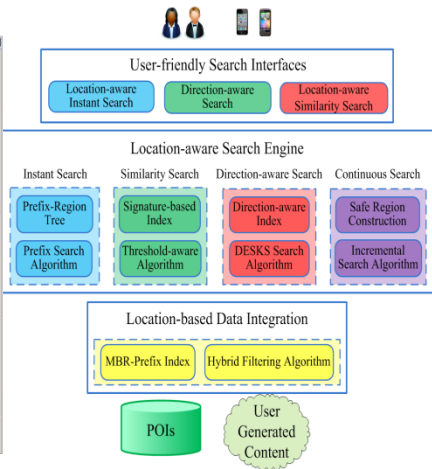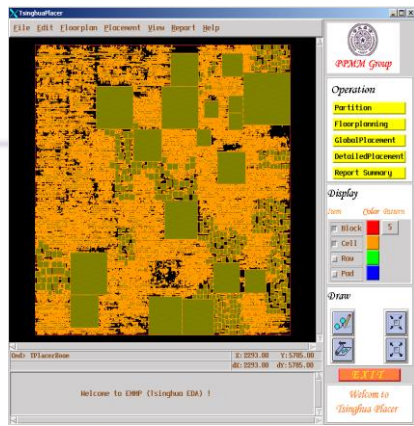Academic Social network (Aminer)
More than 600M visits from 220 countries
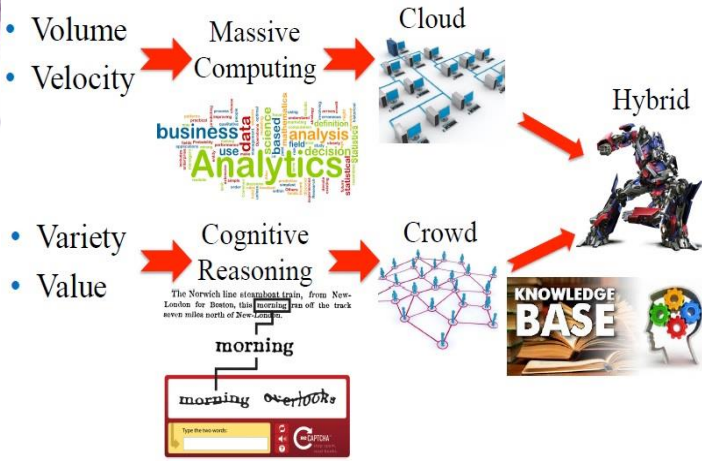
Hybrid Machine-Human Computing

Software Engineering

Brain-Controlled Robot

Human-Computer Interface

Research Grants

* **Research grants has been increasing consistently over the past years**
  - 1~2M RMB / faculty
  - About 2/3 of research funding comes from government, 1/3 from industry
  - International Cooperation with more than 20 countries from North America, Eruope, Asia, Australia, Africa.

Annual Research Funding(Unit:1M RMB)
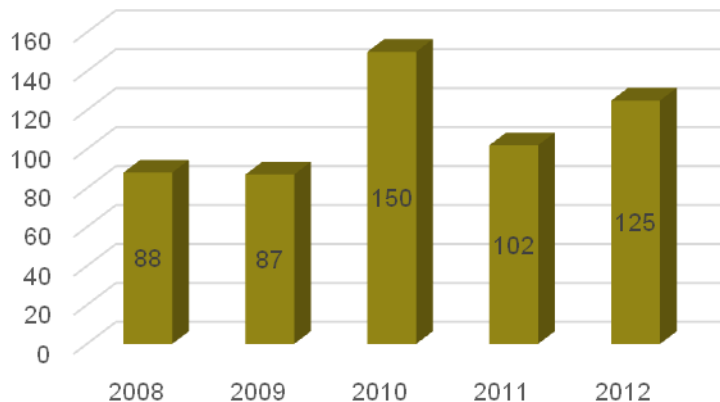
Source of Research Funding

International Collaboration 15%
NSFC 14%
863 (MOST) 22%
Domestic Industry 12%
Other Government Divisions 28%
973 (MOST) 9%
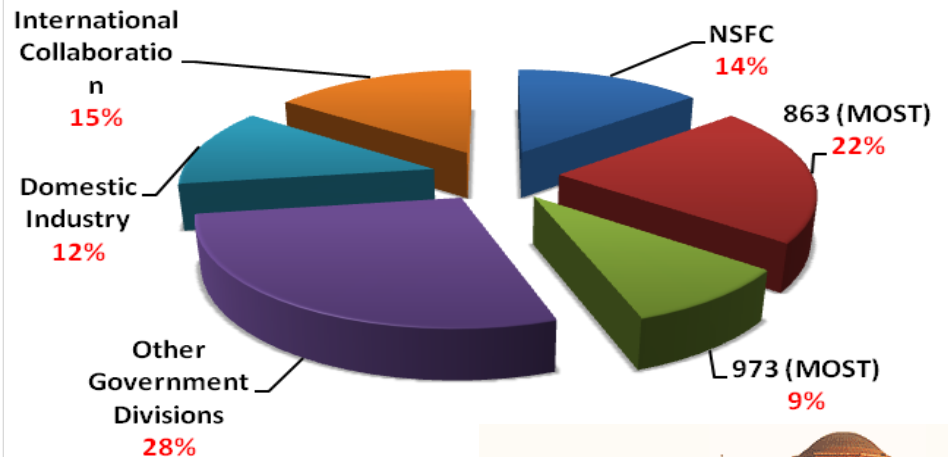
Education Programs

* **Programs & Degrees**
  * Undergraduate program(Bachelor): 4 years
  * Master program
    - Master of Science (M.S.): 3 years
    - Master of Engineering (M.E.): 3 years
    - Master in Advanced Computing (for foreign students, in English): 2 years
  * Ph.D. program (Ph.D.): 4-6 years

Undergraduate

* Admission
  - TOP 10 in their home provinces
  - 92% of all IOI winners
  - 85% of all NOI winners
  - 150 students/year
  - About 610 students

Undergraduate

* 83 courses (CS and public courses)
* 17 outstanding courses
* 3 Beijing distinguished teachers
* Three unique features:
  - Freshmen Seminar
  - Advanced Laboratory
  - Student Research Training (SRT)

Student Research Training

* Student Research Training (SRT) helps undergraduates gain experience at early stage of their research career.

* Selected students joined research projects advised by faculty members. More than 600 undergraduate students worked on over 740 SRT projects in recent five years.

SRT students present system to industry collaborators

Graduate Students

* Current graduate students: 1195
    - Doctoral candidates: 484
    - Master of Science: 341
    - Master of Engineering: 370
* Courses
    - 70 graduate courses
    - 11 Tsinghua Outstanding Courses

Student' Best Paper Awards

* Students have published hundreds of papers in top conferences/journals such as SIGGRAPH, SIGCOMM, SIGMOD, SIGKDD.

* A number of best paper awards at ACL, COLING, CHI, Multimedia, ICME, ICCD, FSE etc.

Opportunities for Students

* **Internship in industry**
  - MSRA, Google, IBM, Intel, Tecent, Baidu, Sohu, Netease

* **Scholarship from major IT companies**
  - Tsinghua THCST became the 11th member of Siebel Scholars Program in 2009, the only one outside U.S.

* **International conferences and visits**
  - ~200 students attend international conferences per year
  - ~100 students visit international institutions per year

Advanced Computing (International)

* International Master/PhD program
    * Launched in 2010/2017
    * students
        - 105 Degree students
        - more than 70 Exchange students
* International diversity
    * ~ 20 countries
        - 40% from Europe
        - 40% from Asia
        - 10% from U.S.
        - 10% from Africa

Advanced Computing (cont.)

* Two years
  - 24 credits (~10 courses)
* Applicants should have a Bachelor's degree in CS or related areas
  - GPA:3.2
* Living cost
  - About 3500 RMB/month
  - Food, housing… included
* Scholarship
  - Chinese Government Scholarship
  - Beijing Government Scholarship
  - 60% degree student will get scholarship

Advanced Computing—Courses

* **Compulsory course (12 credits)**
    - Chinese Language
    - Chinese Culture and Society
    - Academic Activities
    - Literature Survey and Thesis Proposal
    - Combinatorics and Algorithms Design
    - Machine Learning

* **Elective Courses (no fewer than 11 credits)**
    - Web Information Retrieval
    - Database Technologies
    - Fundamentals of Computer Graphics
    - Topics in Advanced Multimedia Technologies
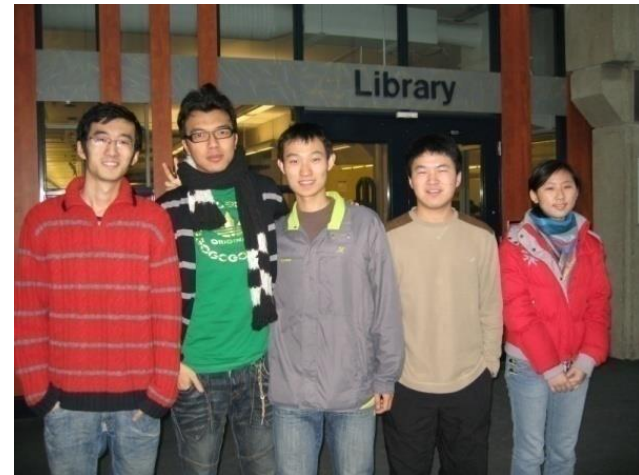   - ……

Culture Exploration

Student Exchange

* Notre Dame University/University of South California/Stanford/MIT/CMU… (Research based)

* USC/CMU…in US (Course/Research based)

* Imperial College London (Course/Research based)

* Epitech and Suplec in France (to our English Master program) (Course/Research based)

* Five universities in Hong Kong (Course/Research based)

Dual-degree Program (MS)

* ## CMU/USC, 3 years

    - ### Master degree from both Universities

* ## Waterloo: 3 years (in Tsinghua) + X years (X>=2)

    - ### Bachelor degree from Tsinghua University and Master degree from Waterloo

THU-CMU Joint Education and Research Program
07/09/2015

THANK YOU!