



# 國立東華大學

## National Dong Hwa University

From the **E**ast to the **B**est

### Introduction of Department of Computer Science & Information Engineering (MS & PhD)

2021.Spring





# Located in the Largest and Most Beautiful Campus in Taiwan





# ~ Our Campus ~





# National Dong Hwa University

Excellent Comprehensive University emphasizes both academic research and teaching.

Spirit : **Freedom 、 Democracy 、 Creativity 、 Excellence**

Value : **Continuity 、 Innovation 、 Diversity 。**

# of Academic Colleges	# of Bachelor Programs	# of Master Programs	# of Executive Master Programs	# of Ph.D. Programs
8	39	57	14	16

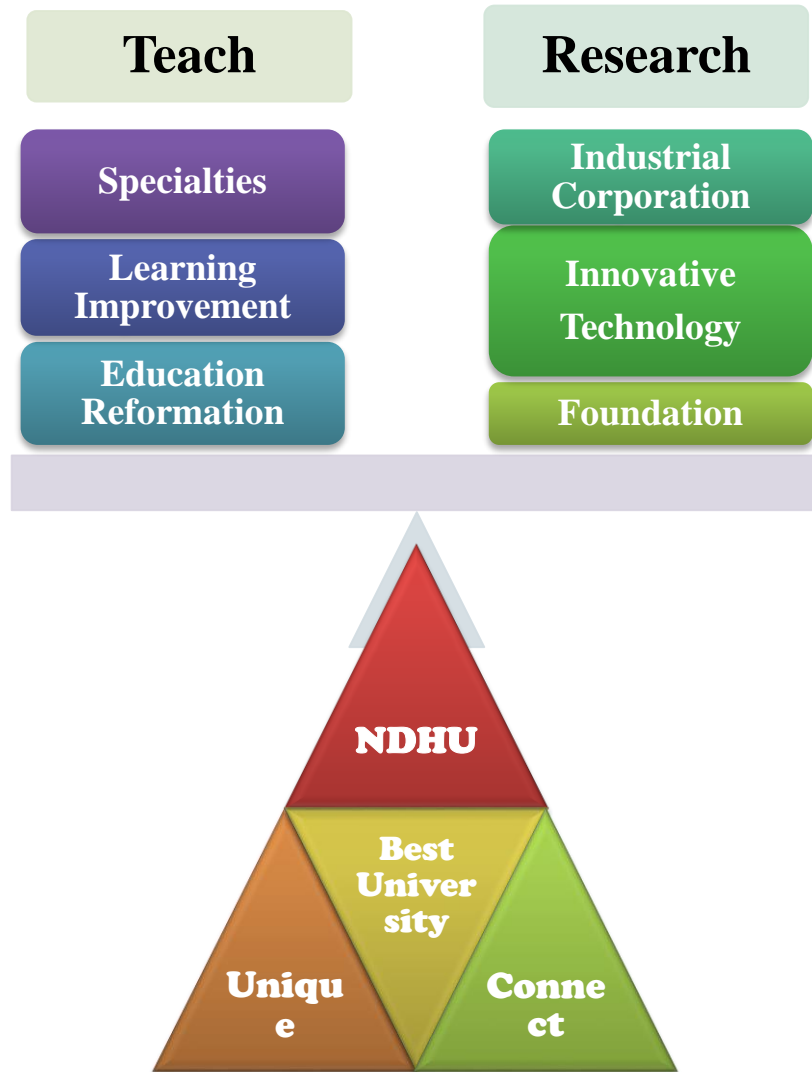
Bachelor	Master	Ph.D	Total Students	Faculty	Ratio	Staff
7,600+	2,000+	390+	9,900+	620+ (95% PhD)	15.9 : 1.0	360+

Status As 2020.11.30

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# NDHU Prospect



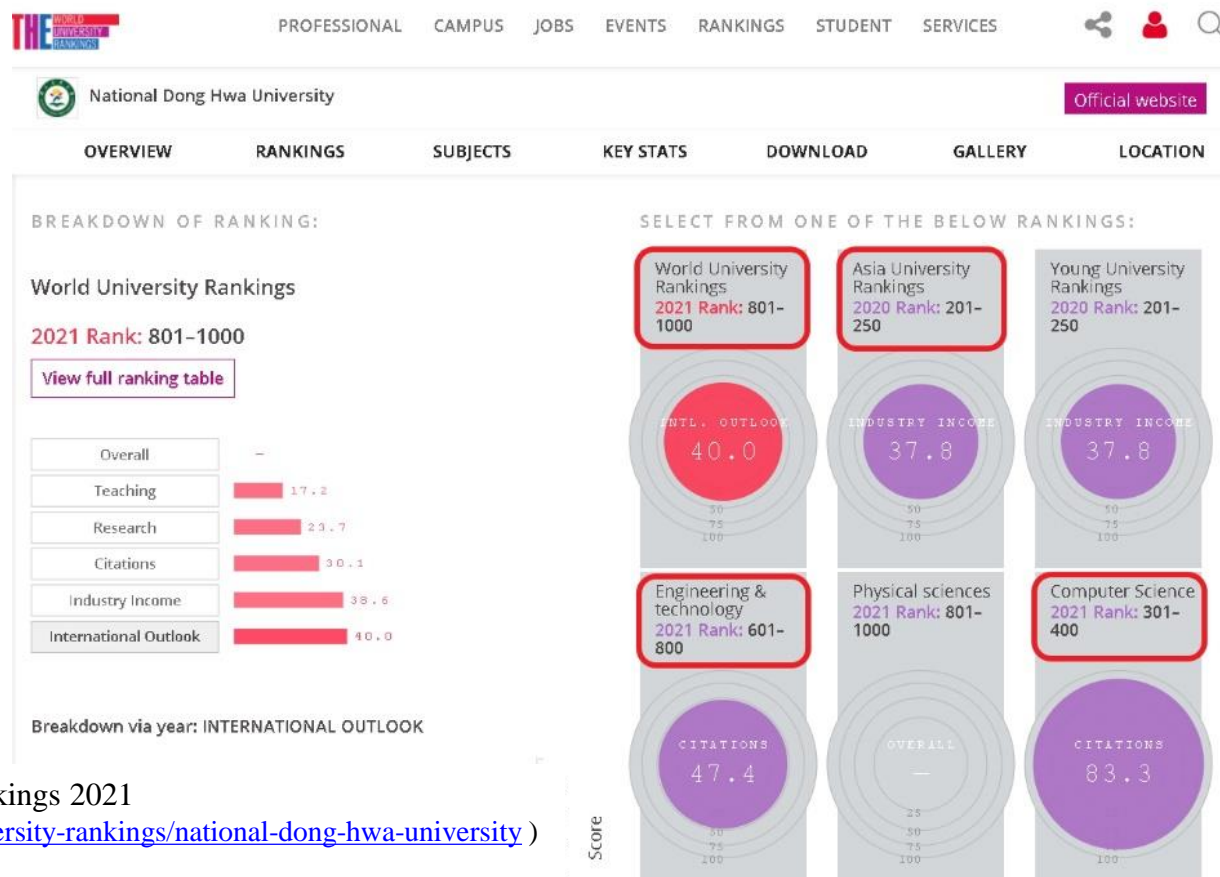
- Excellent comprehensive University
- Emphasizing both academic research and teaching
- Strengthening faculty members' specialties
- Enriching learning depth and scope
- Incubating competent, responsible, and successful leaders of the future society
- Developing unique regional features by integrating natural resources and cultural heritage
- Connecting with international academy; recruiting first-class students and scholars worldwide
- Best University in Taiwan



# Times Higher Education World University Ranking 2021

NDHU ranks **10<sup>th</sup>** in Taiwan, **195<sup>th</sup>** in Asia, **801~1000<sup>th</sup>** in the World

Dept. of CSIE ranks **5<sup>th</sup>** in Taiwan, **301~400<sup>th</sup>** in the World



泰晤士報高等教育特刊 World University Rankings 2021  
(<https://www.timeshighereducation.com/world-university-rankings/national-dong-hwa-university>)



# Dept of CSIE ranks 301~400<sup>th</sup> (Taiwan 5<sup>th</sup>) in Computer Science subject in 2021 THE World Ranking of Academic Performance.



## World University Rankings 2021 by subject: computer science

Rank	Name Country/Region	Overall	Citations	Industry Income	International Outlook	Research	Teaching
62	National Taiwan University (NTU) Taiwan	61.4	41.1	60.1	31.3	74.0	75.3
101-125	National Chiao Tung University Taiwan	49.9-53.2	38.6	51.4	25.0	61.0	55.1
151-175	National Tsing Hua University Taiwan	45.5-47.5	38.3	56.2	27.8	55.7	49.2
201-250	National Taiwan University of Science and Technology (Taiwan Tech) Taiwan	40.1-43.2	62.3	48.4	29.8	35.2	33.9
301-400	National Dong Hwa University Taiwan	33.9-37.8	83.3	44.6	39.0	16.5	14.7
301-400	National Cheng Kung University (NCKU) Taiwan	33.9-37.8	21.5	52.8	19.0	42.7	46.9
301-400	National Sun Yat-Sen University Taiwan	33.9-37.8	40.8	46.4	24.1	31.9	31.6
301-400	National Taiwan Normal University Taiwan	33.9-37.8	48.4	48.7	26.6	28.9	27.7
501-600	Asia University, Taiwan Taiwan	25.7-29.7	27.1	73.9	30.3	25.9	23.8

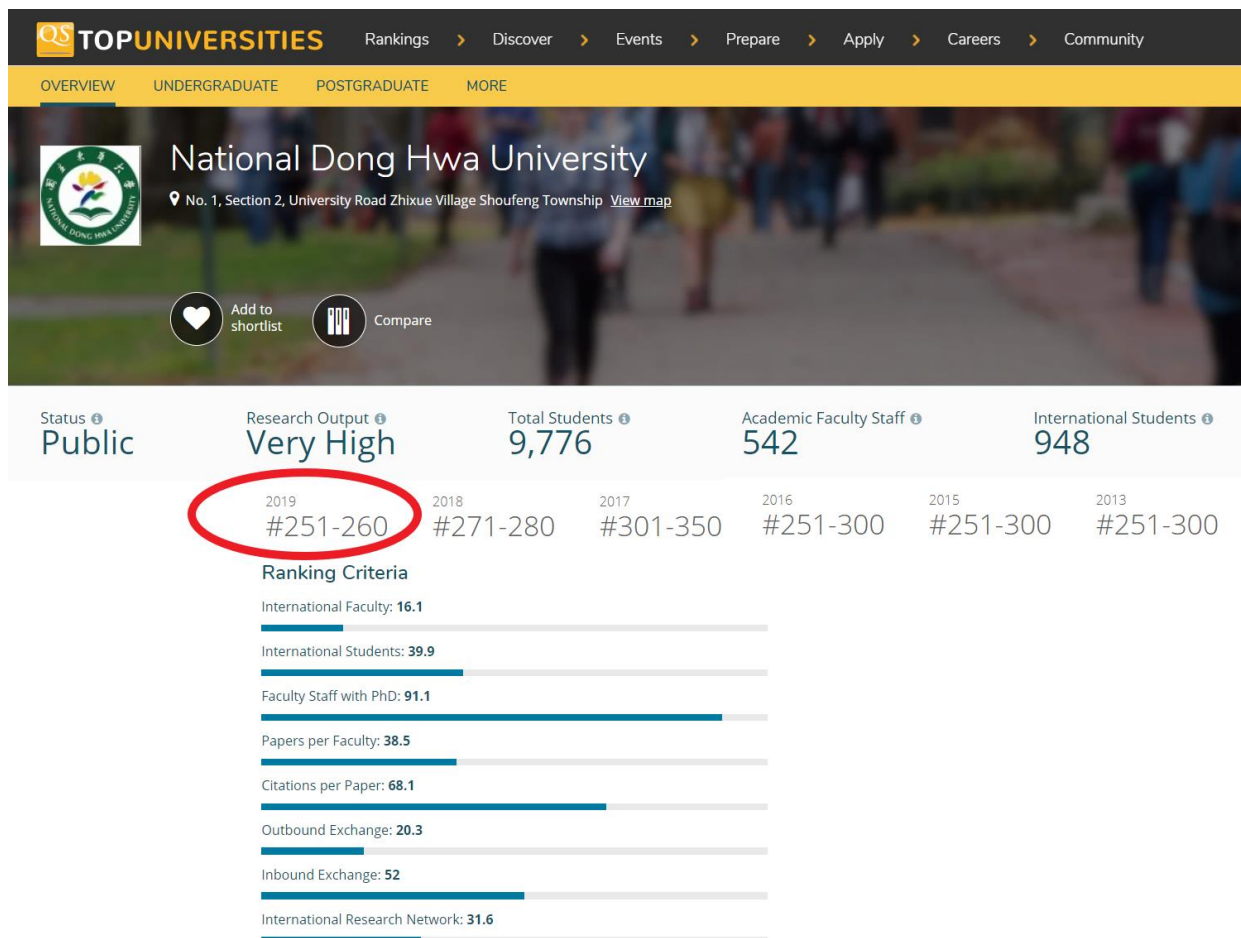
## 2021 泰晤士世界大學分科排名【電腦科學】-- 臺灣

學校名稱	2021 世界	2021 臺灣	2020 世界	2020 臺灣	升降	Overall	Citations 27.5%	Industry Income 5.00%	International Outlook 7.50%	Research 30%	Teaching 30%	Score
國立臺灣大學	62	1	67	1	0	61.4	41.1	60.1	31.3	74	75.3	61.4
國立交通大學	101-125	2	176-200	4	2	49.9-53.2	38.6	51.4	25	61	55.1	49.9
國立清華大學	151-175	3	126-150	2	-1	45.5-47.5	38.3	56.2	27.8	55.7	49.2	46.9
國立臺灣科技大學	201-250	4	151-175	3	-1	40.1-43.2	62.3	48.4	29.8	35.2	33.9	42.5
國立東華大學	301-400	5	401-500	6	1	33.9-37.8	83.3	44.6	39	16.5	14.7	37.4
國立成功大學	301-400	6	301-400	5	-1	33.9-37.8	21.5	52.8	19	42.7	46.9	36.9
國立臺灣師範大學	301-400	7	401-500	7	0	33.9-37.8	48.4	48.7	26.6	28.9	27.7	34.7
國立中山大學	301-400	8	401-500	8	0	33.9-37.8	40.8	46.4	24.1	31.9	31.6	34.4
國立中央大學	501-600	9	501-600	9	0	25.7-29.7	27.4	55	22.3	24.8	30	28.4
亞洲大學	501-600	10	501-600	10	0	25.7-29.7	27.1	73.9	30.3	25.9	23.8	28.3
逢甲大學	501-600	11	601+	12	1	25.7-29.7	34.6	45.5	30.9	19.1	20.7	26
國立中正大學	601-800	12	501-600	11	-1	15.1-25.6	33.8	44.9	16.1	18.8	18.2	23.8
國立政治大學	601-800	13	601+	13	0	15.1-25.6	28.5	44.8	19.1	20.3	19.7	23.5
國立中興大學	601-800	14	601+	14	0	15.1-25.6	29.8	45.4	20.4	15.8	22.4	23.5
中原大學	601-800	15	601+	15	0	15.1-25.6	24.4	45.2	24.7	20.8	12.4	20.8
淡江大學	601-800	16	601+	16	0	15.1-25.6	12.1	44.5	20.6	22	21.9	20.3
元智大學	601-800	17	601+	17	0	15.1-25.6	22	48	24.8	9.9	12.8	17.1
長庚大學	601-800	18	601+	18	0	15.1-25.6	25.3	47.3	16.9	14.7	12.9	18.9
朝陽科技大學	601-800	19	601+	19	0	15.1-25.6	13.9	45	18.8	16.4	17.2	17.6
國立高雄大學	601-800	20	601+	20	0	15.1-25.6	15.6	45.2	25.5	11.3	11.7	15.4



# QS Asian University Rankings

- National Dong Hwa University , **#251~260<sup>th</sup> in Asia**



QS Top Universities – Asian University Rankings (亞洲 **#251~260**)  
(<https://www.topuniversities.com/universities/national-dong-hwa-university>)

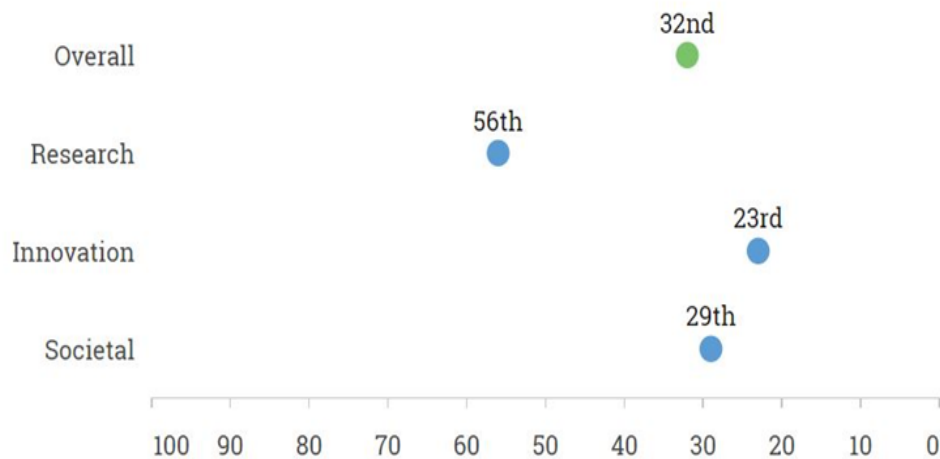


# SCImago ranking

National Dong Hwa University 

Taiwan

## Percentiles



 How to embed this widget in your website?

<https://www.scimagoir.com/institution.php?idp=1743>



# Internationalized Campus

- Cooperate and Exchange agreement with > 350 universities around the world, including Asia, Europe, North America, Africa...
- Bachelor, Master, and Ph.D Programs Taught in English
- Scholarships for International students
- Free fundamental Chinese classes
- Bilingual Staff to assist students





# International Students on campus

	2016-17 School Year	2017-18 School Year	2018-19 School Year	2019-20 School Year	2020-21 School Year
<b>International</b>	<b>271</b>	<b>269</b>	<b>338</b>	<b>389</b>	<b>380</b>
<b>Exchange</b>	348	137	130	179	0 (due covid-19)
<b>Oversea Chinese</b>	397	436	428	430	424
<b>Chinese Language</b>		54	54	89	29 (due covid-19)
<b>Total</b>	<b>1016</b>	<b>896</b>	<b>950</b>	<b>1087</b>	<b>833</b>

**In-status student counts as of 2020.11.05. Students graduate each year.**

**Note: 2020-21 was affected by Covid-19 pandemic disease worldwide.**



# NDHU E-Learning Environment

- **Academic Network Hub Center of Taiwan**
- **Complete E-Learning Environment**  
ex: Long-Distance Learning classroom, Multimedia classroom, e-learning platform, e-systems...etc.
- **Fully covered by high-speed internet access 24-hrs**  
including academic buildings, dorm rooms, & sport fields.





# NDHU Library

**13,000 sq meter, more than 1,500,000 books  
(including Western publications)**



**Reading Room**



**Display Area**



**Microfilm Room**



# Campus Buildings

Engineering Building (Department Offices of CSIE and Electronic Engineering )



Indigenous Studies Building



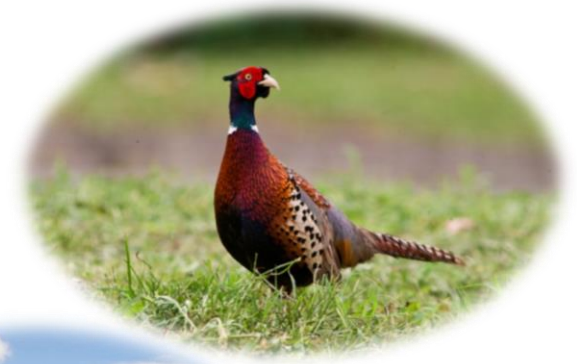
# Campus Buildings





# Campus Facility

- **Dormitory : 6,000 Air-Conditioned rooms guaranteed for all international students**
- Shuttle Bus
- Library & Computer Center
- Bookstore, Cafeteria, Restaurants
- Banks, Postal Office, Coffee Shop
- **Rock Climbing Arena**
- **Cricket Ball, Football, Soccer fields**
- **Swimming Pool (in and outdoors)**
- **Kayak, Sailboat**
- Basketball, Volleyball, Badminton, Tennis Court
- Gym, Weight Training, Running Track
- Bicycle Lanes
- Guest Hotel





# Sport Facility





# ~ Our Lives on Campus ~





# Modern Dormitory & Living Space

- All new 6000 **Air-Conditioned** private rooms with bathroom inside.
- Bright large living space.
- **Dormitories are guaranteed for all international students.**
- **Prayer rooms**, Kitchens, Community rooms, Study centers.
- 24-hr Managers and Campus Policemen on duty.
- Campus Shuttle Bus run between campus and downtown every hour.
- Comfortable and Convenient living environment.





# Modern Dormitory (inside)





# Modern Dormitory (facility)





# Facility – Prayer Room (Mushollah)





# Various Eatery on campus



## Lakeside Brunch

RICE (with Salad or French fries)		SPAGHETTI (with Salad or French fries)	
Rosemary Grilled Chicken 烤雞排	NT\$120	Smoked Chicken 奶油燻雞	NT\$100
Tonkatsu (Fried pork) 日式豬排	NT\$120	and Cream Sauce	
Beef Stew in Red Wine 紅酒牛肉	NT\$130	Smoked Chicken 番茄燻雞	NT\$100
Roasted Pork with kimchi 滷味豬	NT\$120	and Tomato Sauce	
Taiwanese Salted Bacon 鹹豬肉	NT\$120	Bacon and Pesto Sauce 青醬培根	NT\$100
Chef's Stewed Pork 紅燒肉	NT\$120	Smoked Salmon 奶油燻鮭魚	NT\$100
		and Cream Sauce	NT\$100
		Mushroom 蘑菇野菇	NT\$100
		and Tomato Sauce	
• +NT\$40 To Upgrade Additional Dessert and NT\$25 Drinks (From MENU)			
SNACKS		BAGEL	
Toast with Jam 薄片	NT\$15	Vegetables and Fruits (Veggie)蔬菜貝果	NT\$50
Thick Toast with Jam 厚片	NT\$25	Roast Beef 牛肉貝果	NT\$65
French Fries 薯條	NT\$40	Smoked Chicken 燻雞貝果	NT\$65
Fried Mozzarella 起司條	NT\$50	Ham 火腿貝果	NT\$65
Krispy Onion Rings 洋葱圈	NT\$50		
Smoked Chicken Burrito 雞肉捲	NT\$90		
Beef Burrito 牛肉捲	NT\$90		
Fried Three-For-All 綜合炸物	NT\$120		
SANDWICH		FOCACCIA	
Mashed Potato (Veggie)薯泥	NT\$50	Vegetables and Fruits (Veggie)綜合蔬菜	NT\$50
Beef 牛肉	NT\$65	Roast Beef 牛肉	NT\$65
Egg and Pork 肉蛋	NT\$65	Smoked Chicken 燻雞	NT\$65
Fried Chicken 炸雞排	NT\$65	Ham 火腿佛卡夏	NT\$65
Tuna and Corn 鮪魚	NT\$65	Bacon 培根佛卡夏	NT\$65
WINTER SPECIAL			
Korean Pomelo Tea 柚子茶	NT\$45		
Ginger Tea with Brown Sugar 黑糖薑茶	NT\$45		
Fruit Tea 水果茶	NT\$45		
Longan Tea with Jujube 桂蜜紅果茶	NT\$45		





# Transportation on campus



Shuttle buses run between NDHU campus to DownTown Hualien City



Street shops nearby



Train station next to NDHU Campus



# Multivariate Courses



- Rock Climbing, Diving, Whale Watching
- Marine Center, TV studio、3D Print、Maker Space





# Multivariate Courses



- Independent Research, In-Door Sports
- Rock Climbing, Wind Surfing, Kayaking on campus





# Student's Entertainment



Night Market



Concert Festival



Movie Theater / KTV



Ocean Beach



# Student's Entertainment



River Trackin, Natural Wonder





# Student's Entertainment

Hiking 、 Kayak 、 River Tracking 、 Natural Wonder





# ~ Our Study in Dept of CSIE ~

## Computer Science & Information Engineering





# Why CSIE ?

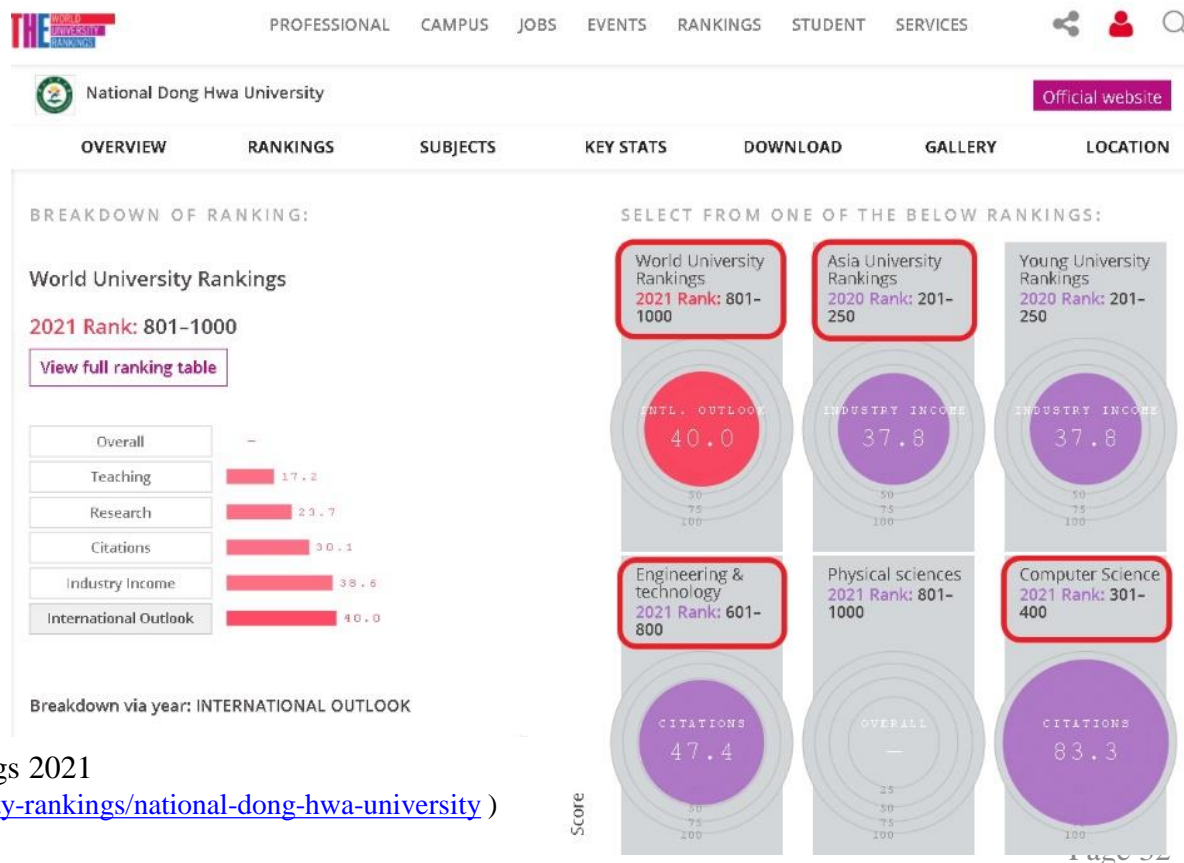
- AI & Deep Learning ∈ **CSIE**
  - Cloud Computing & Big Data ∈ **CSIE**
  - Social Networks & Media ∈ **CSIE**
  - Digital Graphics, Animation & Games ∈ **CSIE**
  - Internet & WWW ∈ **CSIE**
  - APPs & Mobile Services ∈ **CSIE**
  - ...
- 
- **Better job, Better life, Better world with CSIE**
  - **Study CSIE is great investment !!**



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## 2021 泰晤士世界大學分科排名【電腦科學】-- 臺灣

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元智大學	601-800	17	601+	17	0	15.1-25.6	22	48	24.8	9.9	12.8	17.1
長庚大學	601-800	18	601+	18	0	15.1-25.6	25.3	47.3	16.9	14.7	12.9	18.9
朝陽科技大學	601-800	19	601+	19	0	15.1-25.6	13.9	45	18.8	16.4	17.2	17.6
國立高雄大學	601-800	20	601+	20	0	15.1-25.6	15.6	45.2	25.5	11.3	11.7	15.4



# Low Cost for Higher Education

2020~2021 Estimated Expenses to Study at NDHU (Bachelor)				(Master & Ph.D. )		
	NTD/semester	NTD/year	USD/year	NTD/semester	NTD/year	USD/year
Personal Expenses				Personal Expenses		
Dormitory Fee	10,700 NTD	21,400 NTD	713 USD	10,700 NTD	21,400 NTD	713 USD
Dormitory Deposit	1,000 NTD	2,000 NTD	67 USD	1,000 NTD	2,000 NTD	67 USD
Book/Supplies	10,000 NTD	20,000 NTD	670 USD	10,000 NTD	20,000 NTD	670 USD
Living Costs Food, transportation etc.	36,000 NTD	72,000 NTD	2,400 USD	36,000 NTD	72,000 NTD	2,400 USD
Student insurance fee, ...etc	5,000 NTD	10,000 NTD	333 USD	5,000 NTD	10,000 NTD	333 USD
Total Personal Expenses	62,700 NTD	125,400 NTD	4,180 USD	62,700 NTD	125,400 NTD	4,180 USD
Tuition fees and Miscellaneous fees				Tuition Fees and Credit Fees		
College of Science and Engineering	55,580 NTD	111,160 NTD	3,750 USD	25,800 NTD	51,600 NTD	1,720 USD
				3,060/credit	3,060/credit	102 USD /credit
Total Expenses				Total Expenses		
Total Estimated Expenses	118,280	236,560	7,930	88,500	177,000	5,900
	NTD	NTD	USD	+(3,060*credit) NTD	+(3,060*credit) NTD	+(102*credits) USD

NTD = New Taiwanese Dollar, USD = U.S. Dollar

First-year students should anticipate additional expenses to settle down.  
(e.g. computer, bed sheet, pillowcase, etc.)

The above amounts are estimated and will be affected by choice of living style and personal needs.





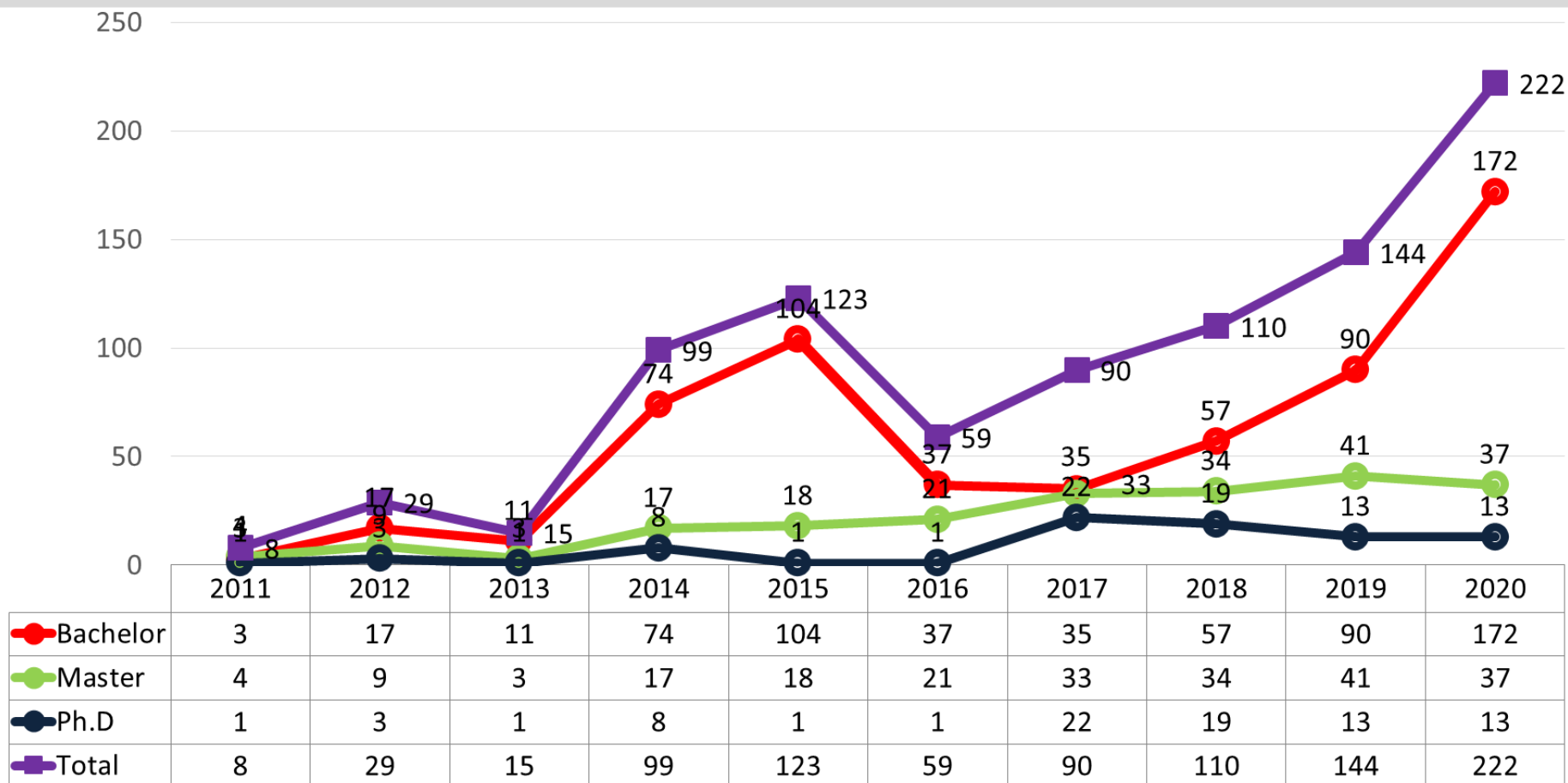
# Financial Aid / Scholarship

# National Dong Hwa University #		# Other Organizations #	
Scholarship	Description	Scholarship	Description
<b>NDHU International Student Scholarship</b>	Tuition 50% ~ 100% Waiver Top Bachelor Students Stipend: NT\$20,000 / semester Top Master's and Doctoral Students Stipend: NT\$30,000 / semester	<b>Vest 500 Project</b>	Tuition Waiver Stipend Insurance Fee Round-trip Economy-class Ticket (Vietnamese only)
<b>NDHU Southward Scholarship</b>	Doctoral Students Only Tuition 100% Waiver -- not include accommodation and other expenses (not including agency, insurance, and Internet fees) Stipend: NT\$6,000/ month Research Incentive: NT\$8,000/ month	<b>Mekong 1000 Project</b>	Tuition Waiver Stipend Round-trip Economy-class Ticket (Vietnamese only)
# Government Agencies #		<b>Danang Project</b>  <b>Aceh Project</b>  <b>BUDI Project</b>  <b>Thai Elite 600 Project</b>  <b>Southern Sunshine Scholarship (SSS) Project</b>	Tuition Waiver Stipend Insurance Fee Round-trip Economy-class Ticket (Vietnamese only)
Scholarship	Description		Tuition Waiver Stipend Insurance Fee Round-trip Economy-class Ticket (Indonesian only)
<b>Taiwan Scholarship</b>	International Cooperation and Development Fund (TaiwanICDF) 100% Tuition and Fee Waiver 100% Dorm Room and Insurance paid Bachelor Stipend: NT\$12,000 / month		Tuition Waiver Stipend Insurance Fee Book Fee (Indonesian only)
	Ministry of Foreign Affairs (MOFA) Tuition 50% Waiver Stipend: NT\$30,000 / month		Tuition Waiver Stipend Insurance Fee Round-trip Economy-class Ticket (Thai only)
	Ministry of Education (MOE) Tuition 100% Waiver Bachelor Stipend: NT\$15,000 / month Master's and Doctoral Stipend: NT\$20,000 / month		Tuition Waiver Stipend

NDHU Financial Aid Application: <https://oia.ndhu.edu.tw/intl-student/intl-scholarship/intl-scholarship-information>



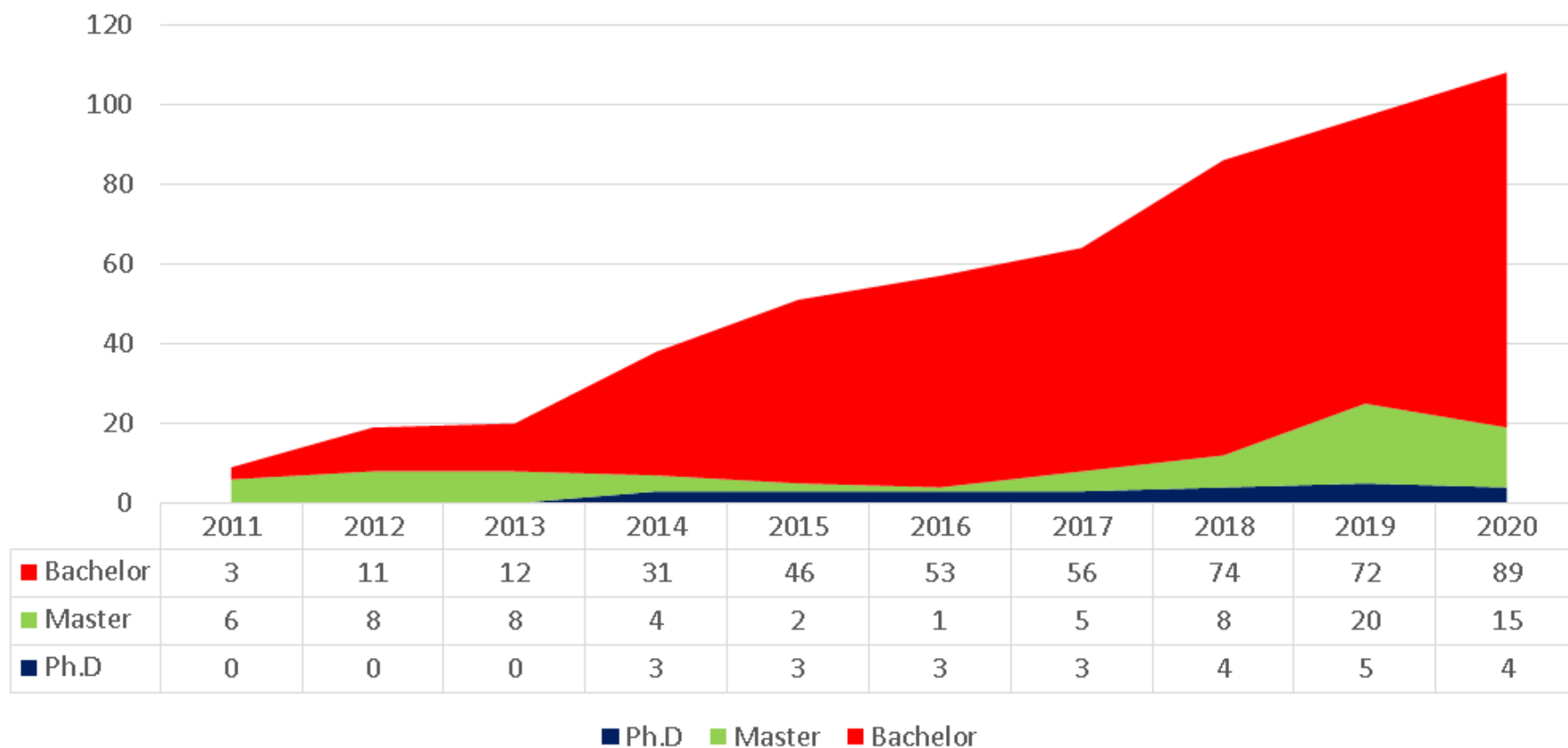
# Internationalized Department



**CSIE Int'l Admission Applications of each academic year**



# Internationalized Department

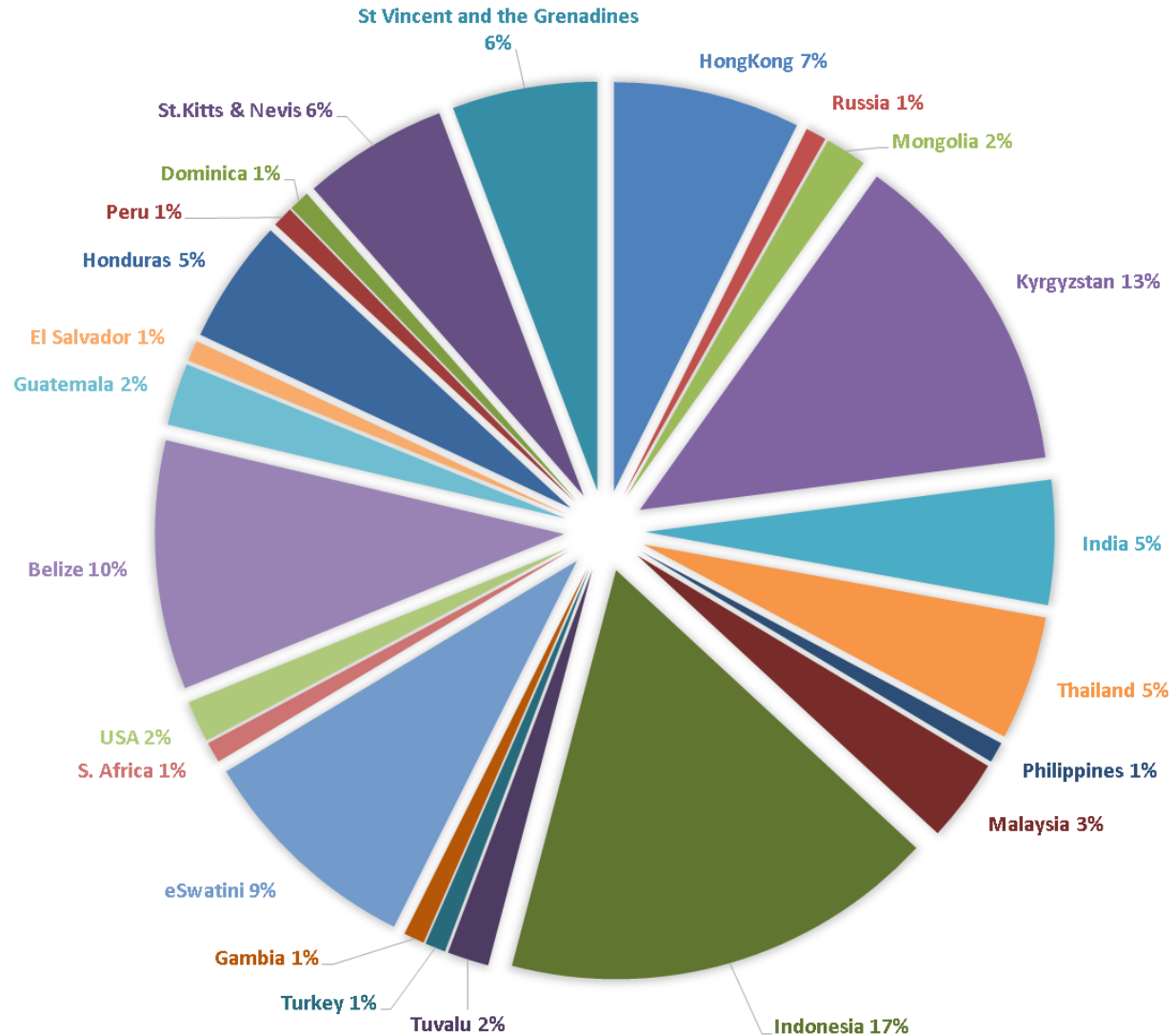


**CSIE International In-Status Students of each academic year**

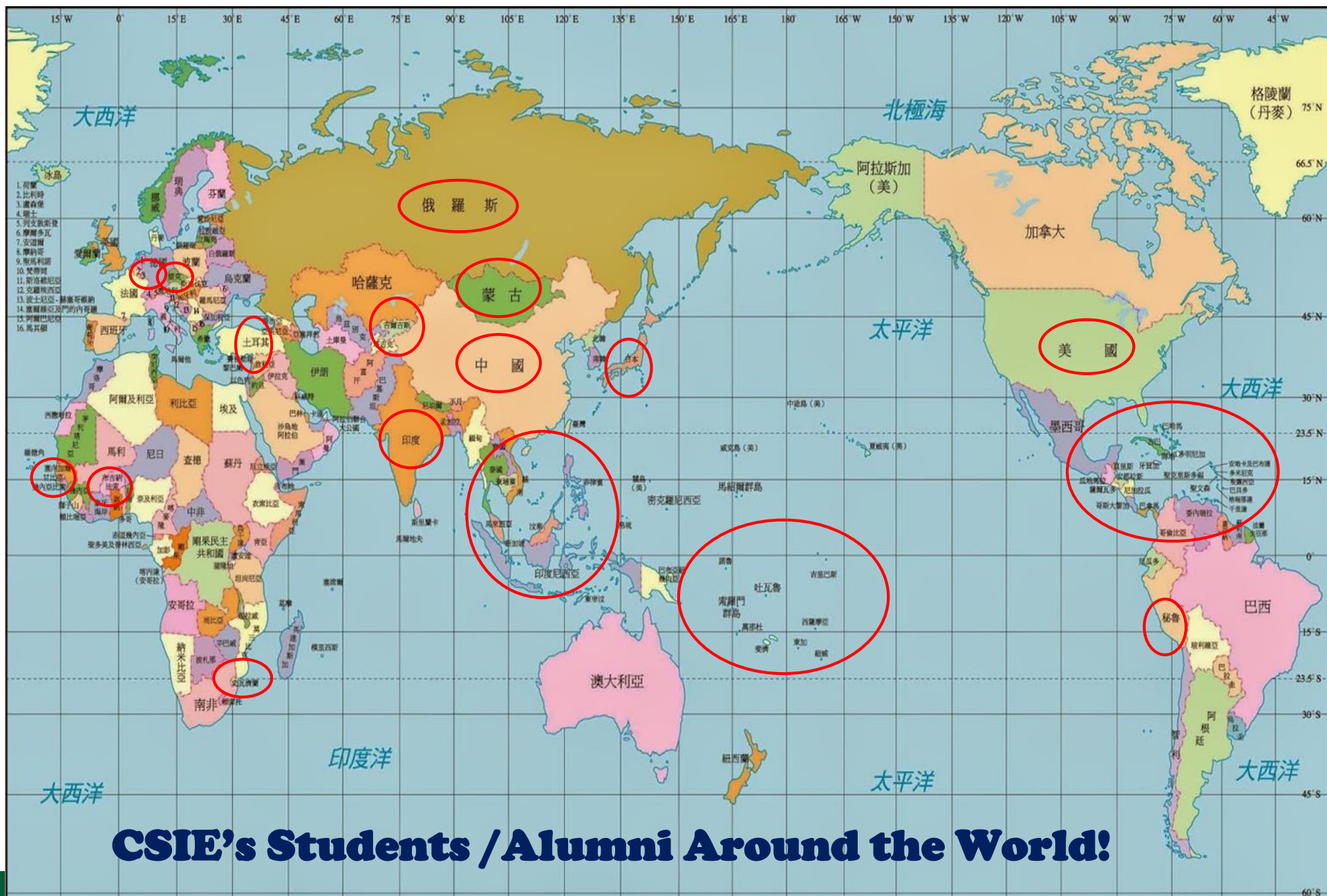


# Internationalized Department

✓ CSIE's Students come from Around the World!







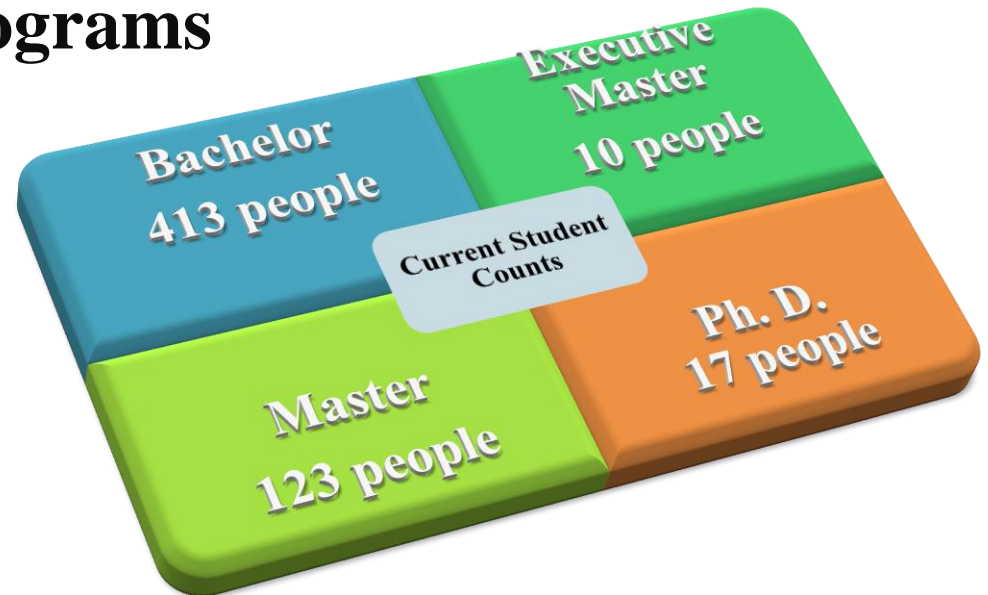
**CSIE's Students / Alumni Around the World!**



# Department of Computer Science & Information Engineering

- **Most comprehensive programs**

- Bachelor
- International Bachelor
- Master
- International Master
- Executive Master
- Ph.D.



- ✓ **Dept of CSIE 300-400<sup>th</sup>** (Taiwan 5<sup>th</sup>) in **Computer Science** subject in 2021 World Ranking of Academic Performance.
- ✓ Outstanding and Remarkable research opportunities and performances.
- ✓ Supportive faculty and excellent learning environment definitely advance your career.



# Faculty Team

## 資訊工程學系

Department of Computer Science  
and Information Engineering (CSIE)

### 軟體系統與 應用研究群

Software Sys & App

### 多媒體研究群

Multimedia Tech & App

### 網路與系統 研究群

Network and System

**吳秀陽 教授** Professor Hsiao-Yang Wu  
美國德州大學奧斯汀校區計算機科學博士  
Dept. of Computer Science, University of Texas at Austin, U.S.A.  
研究領域: 行動裝置管理、分散式系統、嵌入式系統、RFID網路環境、網路管理  
Mobile Computing, Distributed Systems, Embedded Systems, RFID Network Environment, Network Management  
聯絡電話: 33-853-4020 / 4031  
傳真: 33-853-4038  
電子郵件: [hsiao@csie.ndhu.edu.tw](mailto:hsiao@csie.ndhu.edu.tw)  
學術簡歷: [Academic CV](#)

**周世杰 教授** Professor Shih-Chieh Chen  
國立清華大學資訊工程博士  
Dept. of Computer Science and Information Engineering, National Tsing Hua University, Taiwan  
研究領域: 網路工程、分散式系統與網路、物件導向軟體開發、資料庫、軟體測試、軟體維護與工程  
Network Engineering, Distributed Systems and Networks, Object-Oriented Software Development, Database, Software Testing, Software Maintenance and Engineering  
聯絡電話: 33-853-4034  
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Dept. of Computer Science and Information Engineering, National Tsing Hua University, Taiwan  
研究領域: 人工智慧、電腦視覺、機器學習  
Artificial Intelligence, Computer Vision, Machine Learning  
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研究領域: 資料庫、行動計算、資料探勘  
Mobile Computing, Database, Data Mining  
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**彭勝龍 教授** Professor Sheng-Lung Peng  
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研究領域: 演算法、圖形理論、生物資訊學  
Computer Algorithms, Graph Theory, Bioinformatics  
聯絡電話: 33-853-4038  
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**高偉英 教授** Professor Wei-Ying Kao  
交通大學資訊管理研究所博士  
Dept. of Information Management, National Chiao Tung University, Taiwan  
研究領域: 智慧型決策、柔性運籌、最佳化方法與應用  
Optimization Methods and Applications, Soft Computing, Intelligent Decision  
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學術簡歷: [Academic CV](#)

**張道顯 教授** Professor Dao-Xian Zhang  
台灣師範大學資訊教育研究所博士  
Institute of Information and Computer Education, National Taiwan Normal University, Taiwan  
研究領域: 資訊安全、網路服務、工作流、軟體工程  
Information Security, Internet Services, Workflow, Software Engineering  
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**林信鋒 教授** Professor Hsin-Feng Lin  
美國密西沙加大學電腦博士  
Dept. of Electrical Engineering, Mississippi State University, U.S.A.  
研究領域: 信號處理、影像/視訊壓縮、資訊安全  
Signal/Image Processing, Image/Video Compression, Information Security  
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國立成功大學電機工程博士  
Dept. of Electrical Engineering, National Cheng Cheng University, Taiwan  
研究領域: 網路與網路安全、密碼學、密碼理論  
Cryptography, Information and Network Security, Coding Theory  
聯絡電話: 33-853-4038  
傳真: 33-853-4038  
電子郵件: [yang@csie.ndhu.edu.tw](mailto:yang@csie.ndhu.edu.tw)  
學術簡歷: [Academic CV](#)

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國立交通大學資訊工程博士  
Dept. of Computer Science and Information Engineering, National Chiao Tung University, Taiwan  
研究領域: 網路網路、影像處理、圖形學、智慧型人機介面  
Network, Image Processing, Pattern Recognition, Intelligent Human-Machine Interface  
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Image Processing, Computer Vision, Computer Graphics  
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研究領域: 行動計算、無線網路、資訊服務  
Mobile Computing, Wireless Network, Information Services  
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**賴賢運 教授** Professor Hsien-Yen Lai  
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Dept. of Computer Science and Information Engineering, National Chiao Tung University, Taiwan  
研究領域: 網路網路、網路診斷、網路網路、容錯計算  
Interconnection Networks, Error Diagnosis, Graph Theory, Fault Tolerant Computing  
聯絡電話: 33-853-4033  
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國立中正大學資訊工程博士  
Dept. of Computer Science and Information Engineering, National Chung Cheng University, Taiwan  
研究領域: 電腦網路、無線網路、雲端網路  
Computer Networks, Wireless Network, Cloud Network  
聯絡電話: 33-853-4034  
傳真: 33-853-4034  
電子郵件: [chen@csie.ndhu.edu.tw](mailto:chen@csie.ndhu.edu.tw)  
學術簡歷: [Academic CV](#)

**雍忠 教授** Professor Chong-Yung Yang  
美國紐約大學計算機科學博士  
Dept. of Computer Science, New York University, U.S.A.  
研究領域: 演算式、程式分析、雲端系統、最佳化  
Cloud Computing, Web Technology, Mobile Software, Compiler  
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傳真: 33-853-4077  
電子郵件: [yang@csie.ndhu.edu.tw](mailto:yang@csie.ndhu.edu.tw)  
學術簡歷: [Academic CV](#)



# Excellent faculty

- ✓ 20 full-time professors, all with Ph.D. degrees.
- ✓ 13 professors ( > 65%) used to work in the industry.
- ✓ 15 among them were awarded national or international honors:

**IET Fellow** of Institute of Engineering & Technology,

**Chess Championship** of Computer Olympiad,

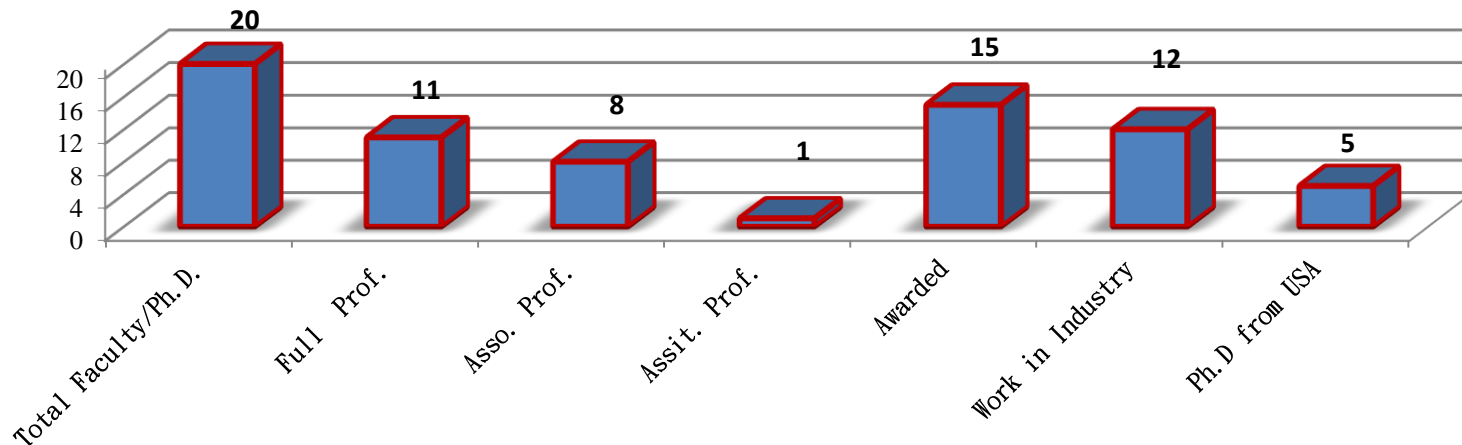
**Gold Prize** Award for “Ideas-Inventions-New Products” (IENA),

**Best** IICM Master / PhD Thesis Award,

**Top Scholar** of Journal of System & Software,

**Gold Prize** for 4C Digital Design Contest,

**Excellent Scholar** on National Science Council projects





# Our Professors with IET Fellow honor



Prof. David Shin-Feng Lin  
Signal/Image Processing, Image/Video  
Compression

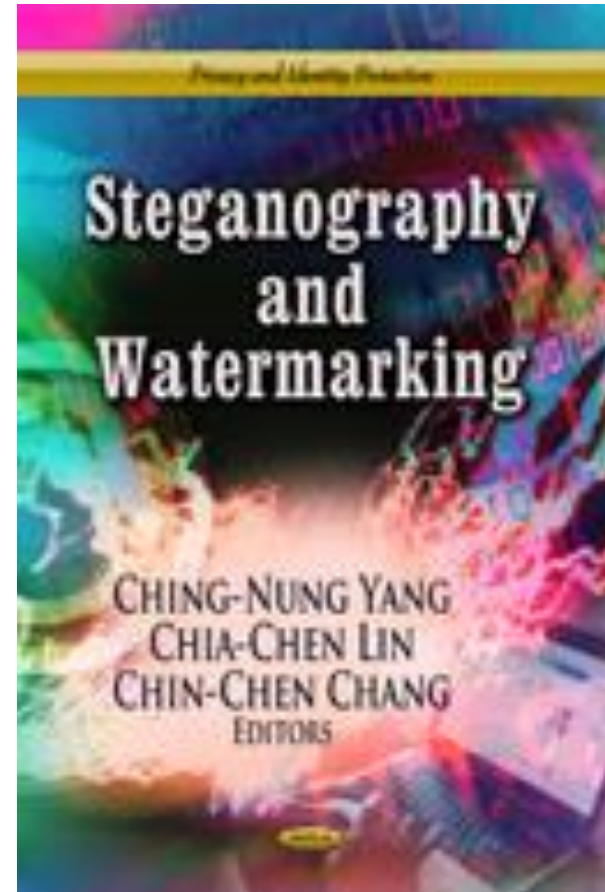
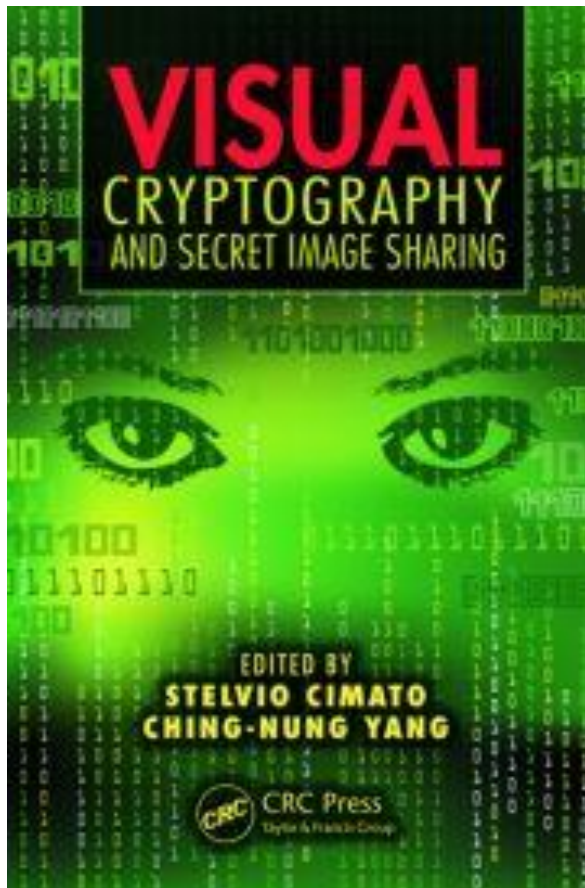


Prof. Ching-Nung Yang  
Information and Network Security  
Cryptography Coding Theory

Page 43



# English Textbook written by our professors





# Diversified Researches

1. Cloud Computing & Big-Data Processing
2. Multimedia Systems
3. Computer Networks and Distributed Systems
4. Data and Knowledge Base Systems
5. VLSI Circuit & Embedded Systems Design
6. Parallel & Distributed Computing
7. Mobile & Pervasive Computing
8. Software Engineering
9. Cryptography and Information Security
10. Computing Theories and Algorithms
11. Human-Machine Interaction Systems
12. Programming Languages and Compiler Systems
13. Artificial Intelligence & Learning Machine
14. Bioinformatics
15. Computer Graphics & Digital Games
16. Decision Support Systems



# Advanced research equipments

Computer Classrooms, Movie Studio, Maker Space



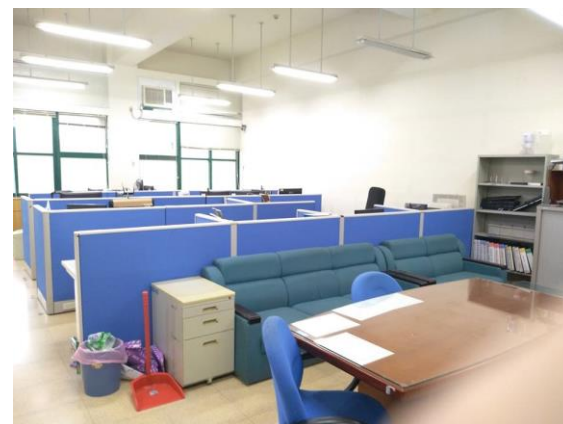
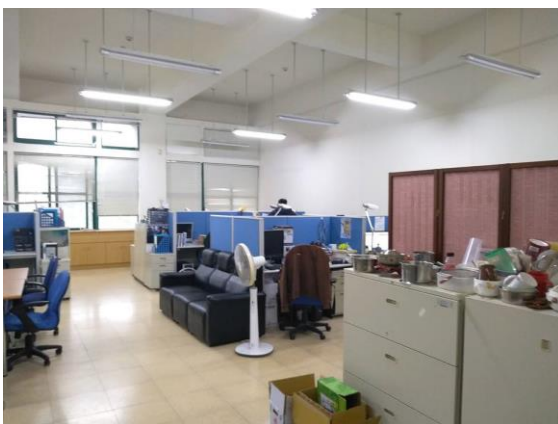


# 20 Research Laboratories

- Artificial Intelligence Laboratory
- Image and Video Processing Laboratory
- Computer Systems Laboratory
- Software Engineering Laboratory
- Graphs and Bioinformatics Algorithm Laboratory
- Compiler Technology and Application Laboratory
- Multimedia Interaction Technology Laboratory
- Computer Vision and Virtual Reality Laboratory
- Pervasive Computing and Data Management Laboratory
- Cryptography and Information Security Laboratory
- Digital Image and Vision Computing Laboratory
- Decision Support Systems Laboratory
- Advanced Network Technology Laboratory
- Distributed Computing Laboratory
- Intelligent Systems Laboratory
- Internet Computing and Application Laboratory
- Learning Technology Laboratory
- Interconnection Network and Fault Tolerant Computing Laboratory
- Mobile Computing and Knowledge Engineering Laboratory
- Wireless Internet Service Engineering Laboratory



# Laboratories





# International Cooperation of CSIE

- Academic Involvement
- MOU with Sister Universities
- Research Corporations
- Transnational Cultural Studies
- Host International Conference or Attend oversea
- Faculty Exchanges
- Student Exchange
- English-Taught Degree Programs for International Students



# Cooperation Projects with Partner Univ

Study Abroad  
Program

Exchange  
Program

Dual Degree  
Program

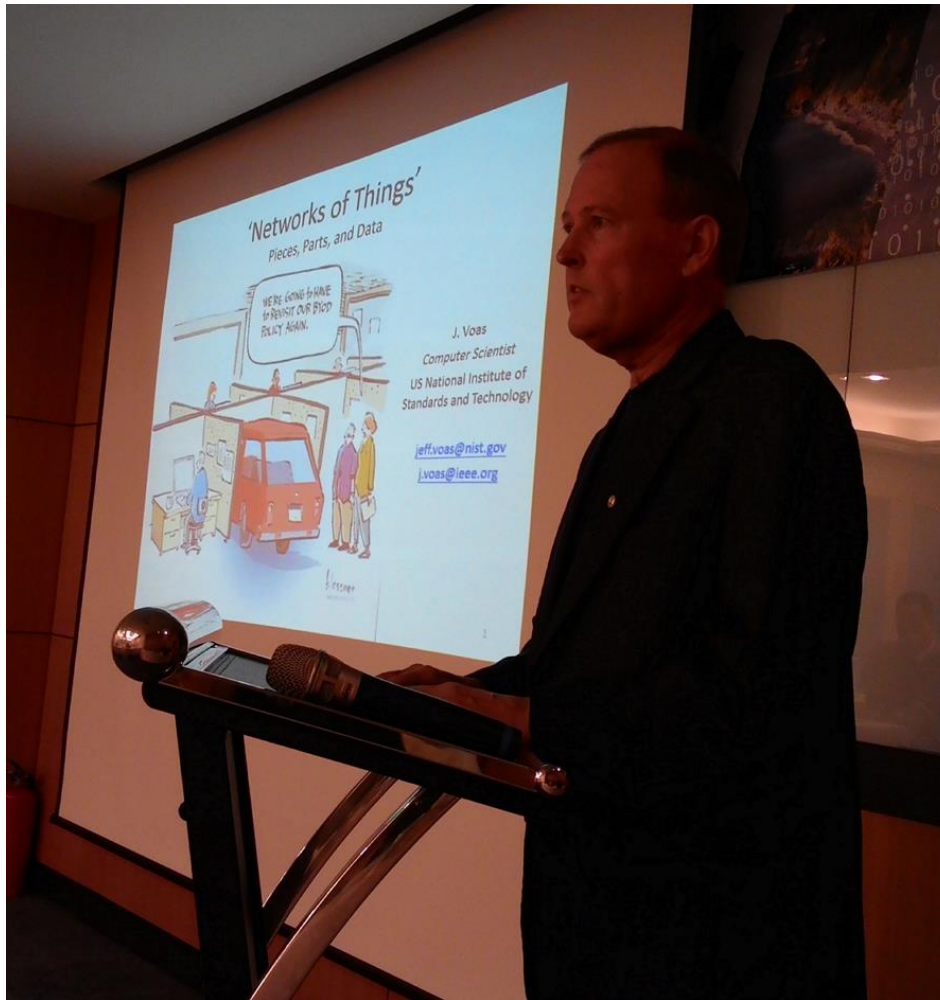
Bridging  
Program

Short-term  
Training  
Program



# International Cooperation of CSIE

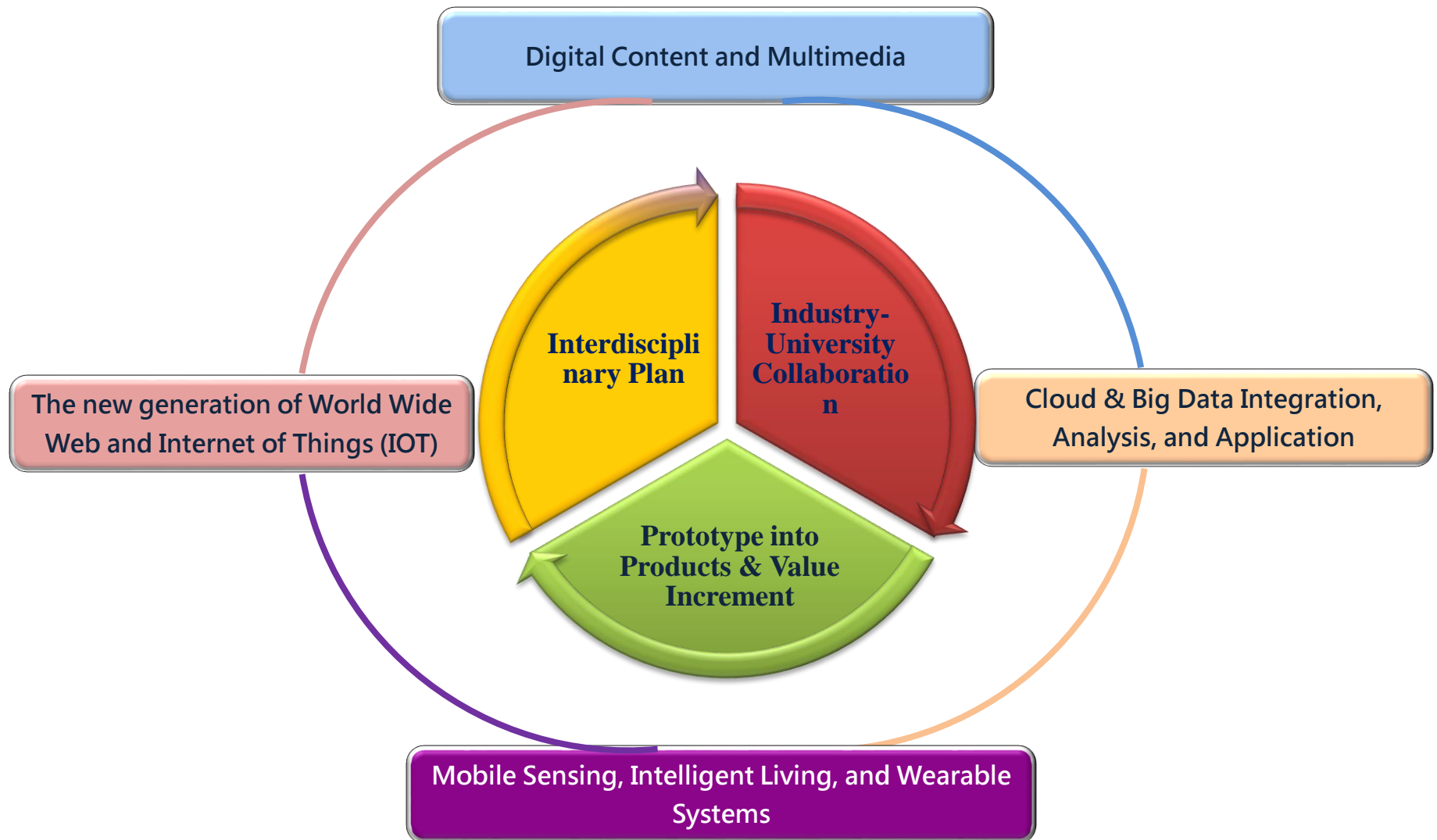
## Academic Involvement



Lecture Seminar



# Research priorities for the next five years





# ~ Our Research Lab ~ Computer Science & Information Engineering





# Software System & Application Research Group

**Shiow-Yang Wu** Professor and Chairman

Education Background:  
Dept. of Computer Science,  
University of Texas at  
Austin, U.S.A.

Research Interest:

Database and Knowledge  
Bases, Mobile and Cloud Computing,  
Distributed Processing, Personalized  
Service, RFID Data Management

Tel: 8634020 Office: 工C308

實驗室：普及計算與資料管理實驗室  
(工C321; 分機：4038)



**Shi-Jim Yen** Professor

Education Background:  
Dept. of Computer Science  
and Information Engineering,  
National Taiwan University, Taiwan

Research Interest:

Artificial Intelligence, Computer Games,  
Machine Learning

Tel: 8634031 Office: 工C324

實驗室：人工智慧實驗室  
(工D303; 分機：4051)



**Tao-Ku Chang** Assis. Professor

Education Background:  
Institute of Information  
and Computer Education,  
National Taiwan Normal University, Taiwan

Research Interest:

Information Security, Internet Services,  
Workflow, Software Engineering

Tel: 8634058 Office: 工A310

實驗室：網路運算與應用實驗室  
(工E308; 分機：4005)



**Guan-ling Lee** Asso. Professor

Education Background:  
Dept. of Computer Science,  
National Tsing Hua University, Taiwan

Research Interest:

Mobile Computing, Database, Data Mining

Tel: 8634030 Office: 工C304

實驗室：知識工程實驗室  
(工A321; 分機：4044)



**Han-Ying Kao** Asso. Professor

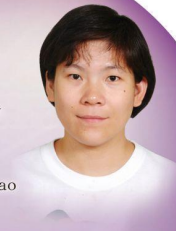
Education Background:  
Dept. of Information  
Management, National Chiao  
Tung University, Taiwan

Research Interest:

Optimization Methods and Applications, Soft  
Computing, Intelligent Decisions

Tel: 8634059 Office: 工A314

實驗室：決策支援系統實驗室  
(工E304; 分機：4004)



**Shih-Chien Chou** Professor

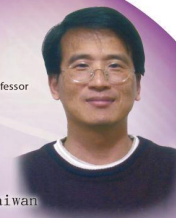
Education Background:  
Dept. of Computer  
Science and Information  
Engineering, National  
Chiao Tung University, Taiwan

Research Interest:

Software Engineering, Systems Analysis and  
Design, Software Development, Object-Oriented  
Software

Tel: 8634024 Office: 工C318

實驗室：軟品工程實驗室  
(工C323; 分機：4037)







## Research Domain

- Big Data and Cloud Computing
- Data and Knowledge Base Systems
- Parallel and Distributed Systems
- RFID Middleware
- Mobile & Pervasive Computing
- E-Commerce Modeling and Workflow Management

Shiow-Yang Wu Professor and Chairman

Education Background:  
Dept. of Computer Science,  
University of Texas at  
Austin, U.S.A.

Research Interest:  
Database and Knowledge  
Bases, Mobile and Cloud Computing,  
Distributed Processing, Personalized  
Service, RFID Data Management

Tel : 8634020 Office : 工C308

實驗室：普及計算與資料管理實驗室  
(工C321;分機：4038)





## Research Domain

- Artificial Intelligence
- Computer Game
- Machine Learning



**Shi-Jim Yen** Professor

Education Background:  
Dept. of Computer Science  
and Information Engineering,  
National Taiwan University, Taiwan

Research Interest:  
Artificial Intelligence, Computer Games,  
Machine Learning

Tel : 8634031 Office : 工C324  
實驗室：人工智慧實驗室  
(工D303; 分機：4051)



**IEEE WCCI 2012, June, 9-16, Brisbane, Australia.**  
**Human vs. Computer Go Competition**  
**Workshop on Emergent Application of Computational Intelligence in Computer Go**

**2011.11 AI Lab, won 1 Gold, 2 Bronze in**  
**Derburg, Holland**



## Research Domain

- **Internet Security**
  - Security for XML Documents
  - Security for XML-based Database System
  - Security of Web Services
  - Security of Service-Oriented Architecture
- **Design and Application of Groupware**
  - Object-Oriented Workflow Management Systems
  - Distributed Workflow Management Systems
- **Mobile Application**
  - Mobile Security

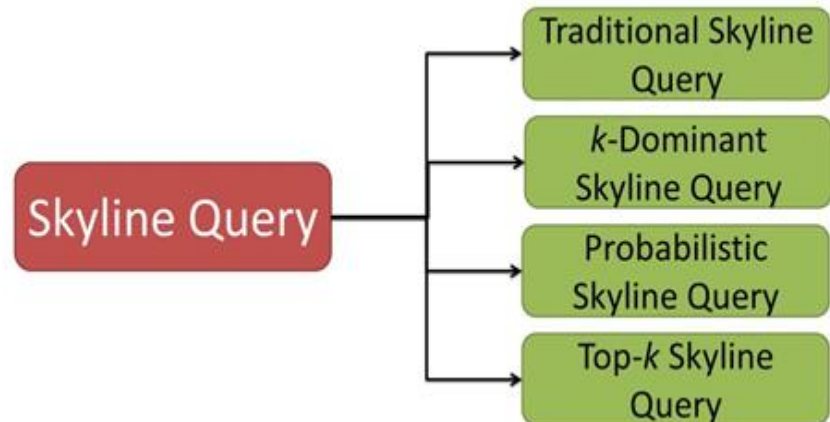
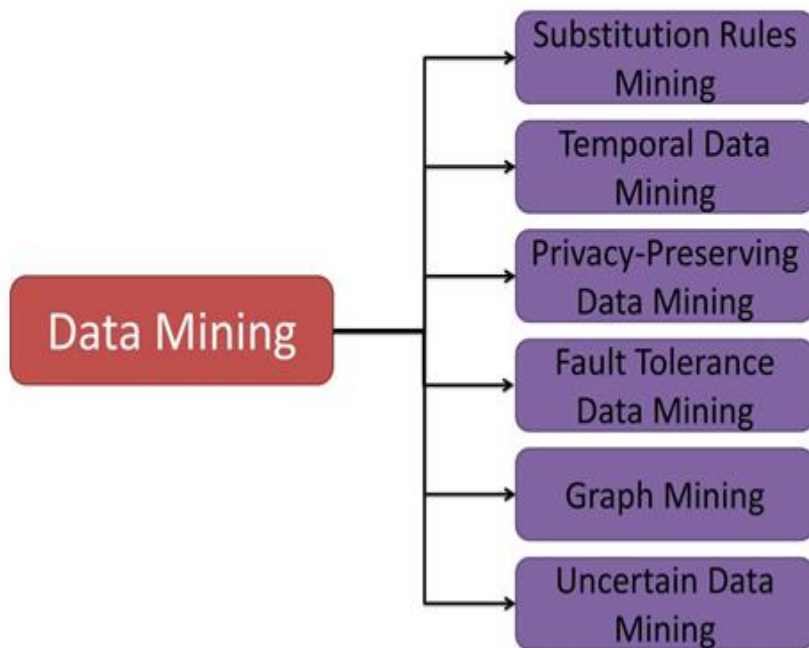






## About MAKING Lab

MAKING Lab was established in 2003. The mission of MAKING Lab is to explore all facets in the area of knowledge engineering. The current research focuses on data mining and skyline query processing. The research interests are described as follows:







# 決策支援系統實驗室

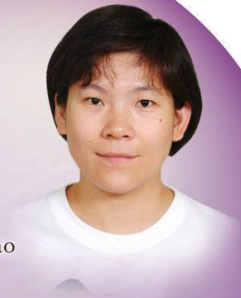
## Decision Support Systems Laboratory

### Research Domain

- Fuzzy Optimization and Reasoning
- Multiple Criteria Decision Methods
- Soft computing
- Data mining and Decision Support

Han-Ying Kao Asso. Professor

Education Background:  
Dept. of Information  
Management, National Chiao  
Tung University, Taiwan  
Research Interest:  
Optimization Methods and Applications, Soft  
Computing, Intelligent Decisions  
Tel : 8634059 Office : 工A314  
實驗室：決策支援系統實驗室  
(工E304：分機：4004)







## Research Domain

- **Software Engineering**
- **System Analysis and Design**
- **Object-Oriented Software Development Software Reuse**
- **Software Development Process Engineering**



# Multimedia Technology & Applications Research Group

**Shin-Feng Lin** Professor and  
Dean of College of Sciences and Engineering



**Education Background:**  
Dept. of Electrical Engineering,  
Mississippi State University,  
U.S.A.  
**Research Interest:**  
Signal/Image Processing, Image/ Video  
Compression, Information Security  
Tel : 8634018 Office : 工A320  
實驗室：影像暨視訊處理實驗室  
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**Mau-Tsuen Yang** Asso. Professor



**Education Background:**  
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Engineering, Pennsylvania  
State University, U.S.A.  
**Research Interest:**  
Computer Vision, Digital Image Processing,  
Virtual Reality  
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實驗室：電腦視覺暨虛擬實境實驗室  
(工C313; 分機：4050)

**I-Cheng Chang** Asso. Professor



**Education Background:**  
Dept. of Electrical  
Engineering, National  
Tsing Hua University, Taiwan  
**Research Interest:**  
Image Processing, Computer Vision, Computer  
Graphics  
Tel : 8634022 Office : 工C316  
實驗室：數位影像與視覺計算實驗室  
(工C317; 分機：4047)

**Ching-Nung Yang** Professor



**Education Background:**  
Dept. of Electrical  
Engineering, National Cheng  
Kung University, Taiwan  
**Research Interest:**  
Cryptography, Information and Network  
Security, Coding Theory  
Tel : 8634025 Office : 工C314  
實驗室：密碼與資訊安全實驗室  
(工A309; 分機：4042)

**Cheng-Chin Chiang** Professor



**Education Background:**  
Dept. of Computer Science  
and Information Engineering,  
National Chiao Tung University, Taiwan  
**Research Interest:**  
Neural Network, Image Processing, Pattern  
Recognition, Intelligent Human-Machine  
Interface  
Tel : 8634027 Office : 工A322  
實驗室：多媒體互動技術實驗室  
(工A323; 分機：4043)

**Chih-Hung Lai** Assis. Professor



**Education Background:**  
Dept. of Computer Science  
and Information Engineering,  
National Central University, Taiwan  
**Research Interest:**  
Digital Learning, Learning Technology, Mobile  
Learning  
Tel : 8634057 Office : 工A306  
實驗室：學習科技實驗室  
(工A423; 分機：4003)





# IMAGE & VIDEO PROCESSING LABORATORY



## Research Domain

- Signal/Image Processing
- Watermarking (Image/Video/Audio)
- Image/Video Compression
- Human Tracking
- Error Concealment in H.264/AVC
- Pattern Recognition
- Information Security



**Shin-Feng Lin** Professor and  
Dean of College of Sciences and Engineering

Education Background:  
Dept. of Electrical Engineering,  
Mississippi State University,  
U.S.A.

Research Interest:  
Signal /Image Processing, Image/ Video  
Compression, Information Security

Tel : 8634018 Office : 工A320  
實驗室：影像暨視訊處理實驗室  
(工A317; 分機：4040)



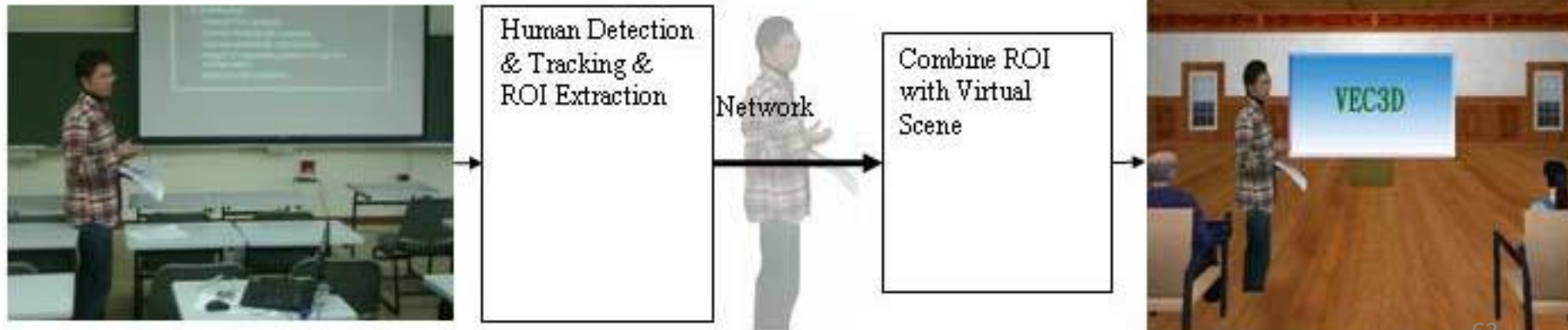




電腦視覺暨虛擬實境實驗室  
Computer Vision & Virtual Reality LAB

## Research Domain

- Computer Vision & Human Tracking
- Virtual Reality & Augmented Reality
- Sport Video Analysis & Traffic Surveillance
- Vision-Based Interface & Image-Based Rendering
- Robot Navigation & E-Learning



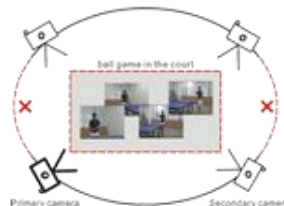
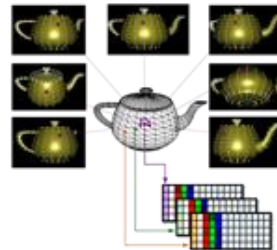
Adaptive Multi-part People Detection, Segmentation & Tracking



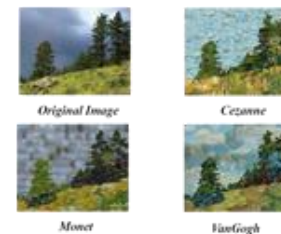
# Digital Image Vision Computing

## Research Domain

- Image Processing
- Matting and Compositing
- Computer Graphics
- Computer Vision



# DIVC



I-Cheng Chang Asso. Professor

Education Background:  
Dept. of Electrical  
Engineering, National  
Tsing Hua University, Taiwan

Research Interest:  
Image Processing, Computer Vision, Computer  
Graphics

Tel : 8634022 Office : 工C316

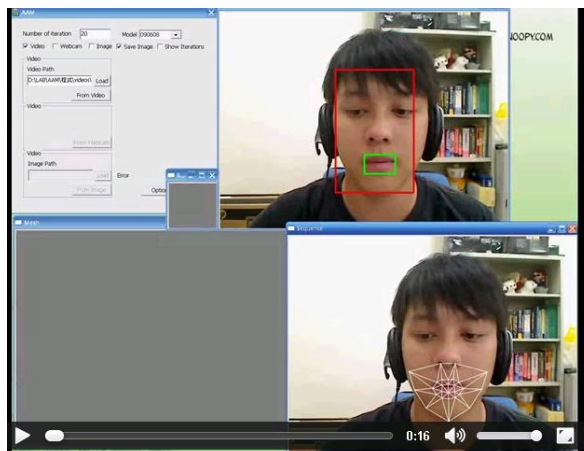
實驗室：數位影像與視覺計算實驗室  
(工C317; 分機：4047)



## Multimedia Interaction Technology

### Research Domain

- Neural Networks
- Image Processing
- Pattern Recognition
- Intelligent Human-Machine Interface



Cheng-Chin Chiang Professor

Education Background:  
Dept. of Computer Science  
and Information Engineering,  
National Chiao Tung University, Taiwan  
Research Interest:  
Neural Network, Image Processing, Pattern  
Recognition, Intelligent Human-Machine  
Interface

Tel : 8634027 Office : 工A322

實驗室：多媒體互動技術實驗室  
(工A323; 分機：4043)





# 學習科技實驗室

## Learning Technology Lab

### Research Domain

- Computer Supported Collaborative Learning (CSCL)
- Computer-Assisted Language Learning (CALL)
- Mobile Learning
- Game-Based Learning



CSCL為利用科技輔助學習與學習者之間進行合作學習



CALL 為以電腦輔助及強化語言學習



Mobile Learning 為使用手機、PDA、GPS、RFID等設備輔助學習者進行行動學習



Game-Based Learning 為藉由學習者對遊戲產生的強烈動機以輔助其進行學習活動



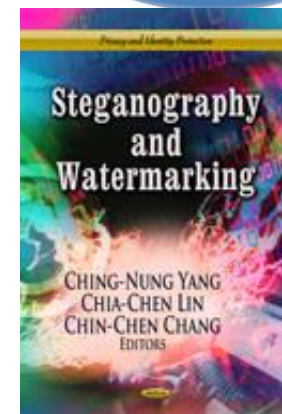
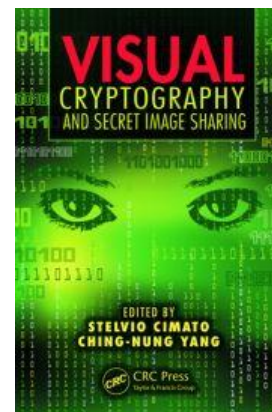
# 資訊安全實驗室

## Research Domain

- Cryptography
- Information & Network Security
- Coding Theory
- Internet Security
  - ◆ Visual Secret Sharing Scheme
  - ◆ Image Secret Sharing Scheme
  - ◆ Information Hiding
  - ◆ Digital Watermark
  - ◆ Digital Multimedia Security
  - ◆ Wireless Security
  - ◆ E-Commerce Security
  - ◆ Quantum Cryptography
  - ◆ Computer Memory Coding

Ching-Nung Yang Professor

Education Background:  
Dept. of Electrical  
Engineering, National Cheng  
Kung University, Taiwan  
Research Interest:  
Cryptography, Information and Network  
Security, Coding Theory  
Tel : 8634025 Office : 工C314  
實驗室：密碼與資訊安全實驗室  
(工A309; 分機：4042)





# Networks & Systems Research Group

Hsin-Chou Chi Asso. Professor



Education Background:  
Dept. of Computer  
Science, University  
of California, Los Angeles, U.S.A.  
Research Interest:  
Computer Architecture, Parallel  
Processing, VLSI Design, Embedded  
Systems

Tel: 8634019 Office: 工C312  
實驗室：計算機系統實驗室  
(工A311; 分機：4039)

Chenn-Jung Huang

Professor and Director of Library and I  
nformation Center



Education Background:  
Dept. of Electrical  
Engineering, National  
Sun Yat-Sen University, Taiwan  
Research Interest:  
Machine Learning, Wireless Network,  
Embedded System, Electronic Learning

Tel: 8634021 Office: 工C322  
實驗室：智慧型系統實驗室  
(工C311; 分機：4048)

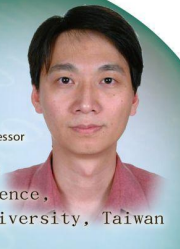
Chang-Hsiung Tsai Professor



Education Background:  
Dept. of Computer Information  
Science, National Chiao Tung  
University, Taiwan  
Research Interest:  
Fault-Tolerant Computing, Peer-to-Peer  
Computing, Interconnection Networks,  
Embedded Systems

Tel: 8634001 Office: 工C325  
實驗室：分散式計算實驗室  
(工E306; 分機：4002)

Shou-Chih Lo Asso. Professor



Education Background:  
Dept. of Computer Science,  
National Tsing Hua University, Taiwan  
Research Interest:  
Mobile Computing, Wireless Network,  
Information Services

Tel: 8634029 Office: 工A318  
實驗室：無線網路服務工程實驗室  
(工C319; 分機：4015)

Min-Xiou Chen Asso. Professor



Education Background:  
Dept. of Computer Science  
and Information Engineering,  
National Chung Cheng University, Taiwan  
Research Interest:  
Computer Network, Wireless Network, Cloud  
Network

Tel: 8634054 Office: 工D308  
實驗室：前端網路技術實驗室  
(工D307; 分機：4055)

Pao-Lien Lai Asso. Professor



Education Background:  
Dept. of Computer  
Information Science,  
National Chiao Tung University, Taiwan  
Research Interest:  
Interconnection Networks, Error-Diagnosis,  
Graph Theory, Fault-Tolerant Computing

Tel: 8634053 Office: 工D306  
實驗室：連結網路與容錯計算實驗室  
(工D305; 分機：4052)

Chung Yung Assis. Professor



Education Background:  
Dept. of Computer Science,  
New York University, U.S.A.  
Research Interest:  
Cloud Computing, Web Technology, Mobile  
Software, Compilers

Tel: 8634017 Office: 工C310  
實驗室：編譯技術與雲端計算實驗室  
(工C315; 分機：4046)



## Research Domain

- Computer Architecture
- Parallel Processing
- VLSI Systems
- System-on-Chip (SoC) Design
- Reconfigurable Computing
- Multiprocessor Networks
- Embedded Systems ---->

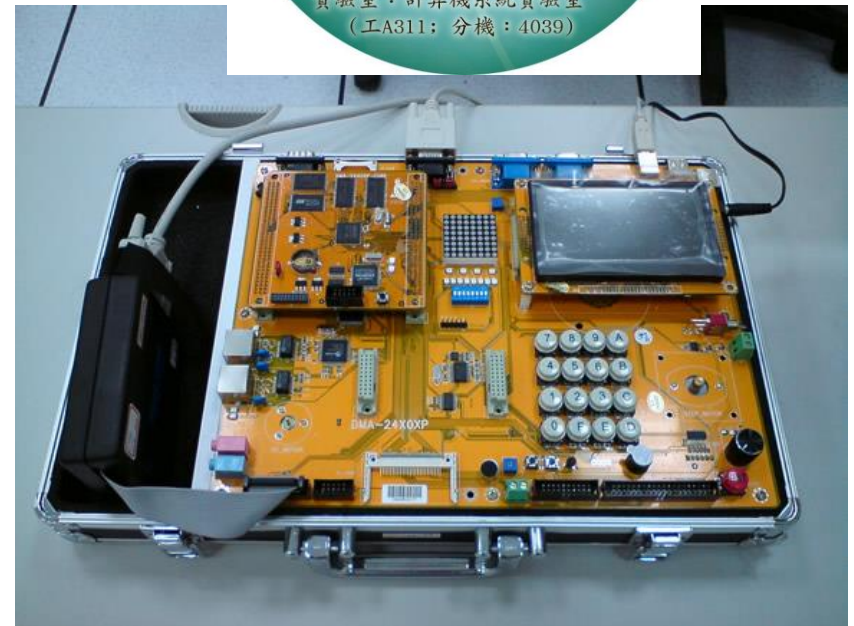
Hsin-Chou Chi Asso. Professor

Education Background:  
Dept. of Computer  
Science, University  
of California, Los Angeles, U.S.A.

Research Interest:  
Computer Architecture, Parallel  
Processing, VLSI Design, Embedded  
Systems

Tel : 8634019 Office : 工C312

實驗室：計算機系統實驗室  
(工A311; 分機：4039)







# Intelligent System Laboratory

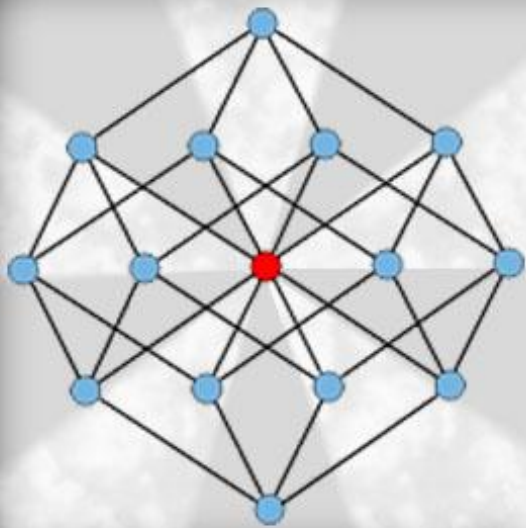
## Research Domain

- WIFY
- Machine learning
- Intelligent Embedded Software
- Development Priorities:
  - ◆ Embedded Device Development
  - ◆ Cross-layer design optimizations in wireless protocol
  - ◆ Development of Machine Learning
  - ◆ Design Chips Applied with Intelligent Algorithms
  - ◆ Establishment on Intelligent Silicon Property (SIP) Database and Application for Patent

Platform Development for Intelligent  
Transportation Application Program







# NDHU



## Distributed Computing Laboratory

### Research Domain

- Fault-tolerant computing
- Parallel processing computing
- Peer-To-Peer computing
- Interconnection network
- Embedding system
- Operating System Engineering

Chang-Hsiung Tsai Professor

Education Background:  
Dept. of Computer Information  
Science, National Chiao Tung  
University, Taiwan

Research Interest:  
Fault-Tolerant Computing, Peer-to-Peer  
Computing, Interconnection Networks,  
Embedded Systems

Tel : 8634001 Office : 工C325

實驗室：分散式計算實驗室  
(工E306；分機：4002)





# WISE Lab

Wireless Internet Service Engineering Laboratory

## 無線網路服務工程實驗室

### Research Domain

- Vehicular Ad Hoc Network (VANET)
- Intelligent Transportation System (ITS)
- Delay-tolerant networks (DTN)
- Mobile Computing
- Wireless Network
- Information Services

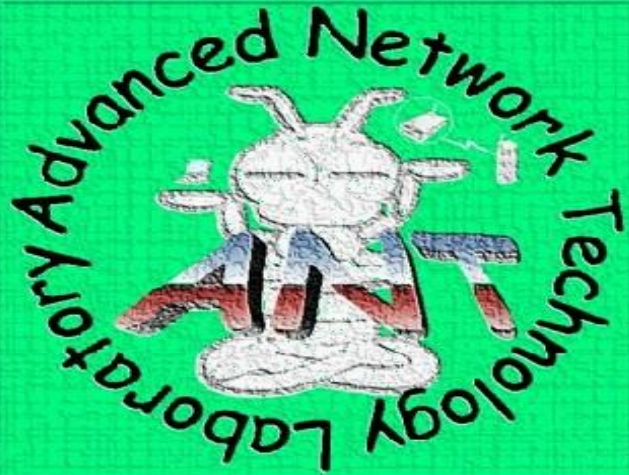
Shou-Chih Lo Asso. Professor

Education Background:  
Dept. of Computer Science,  
National Tsing Hua University, Taiwan  
Research Interest :  
Mobile Computing ,Wireless Network,  
Information Services

Tel : 8634029 Office : 工A318

實驗室：無線網路服務工程實驗室  
(工C319; 分機：4015)





# Advanced Network Technology Laboratory

## 前端網路技術實驗室



### Research Domain

- Cloud Network
- Vehicular Ad Hoc Network (VANET)
- Wireless Communication
- Resource Management in Wireless Systems
- Wireless Sensor Network

### NSC Projects

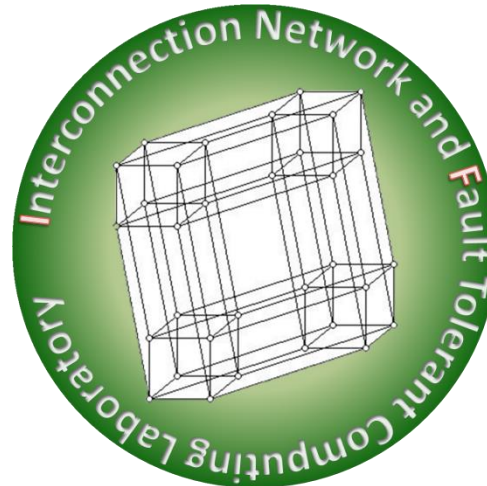
1. Network Mobility Management and Routing Strategies in Vehicular Networks
2. Virtual Network Environment Implementation and Management



# Interconnection Network & Fault Tolerant Computing Laboratory

## Research Domain

- Interconnection network
- fault-tolerant computing
- parallel computing
- Algorithms
- graph theory applications



Pao-Lien Lai Asso. Professor

Education Background:  
Dept. of Computer  
Information Science,  
National Chiao Tung University, Taiwan  
Research Interest:

Interconnection Networks, Error-Diagnosis,  
Graph Theory, Fault-Tolerant Computing

Tel: 8634053 Office: 工D306

實驗室：連結網路與容錯計算實驗室  
(工D305; 分機：4052)

**Study of graphs, mathematical structures** used to model pairwise relations between objects from a certain collection in mathematics and computer science.

**Interconnection networks** are currently being used for many different applications, ranging from internal buses in very large-scale integration (VLSI) circuits to wide area computer networks.

The **architecture of Interconnection networks** is usually represented by graphs.

**Fault-tolerance** is the property that enables a computer-based system to continue operating properly in the event of the failure of some of its components.

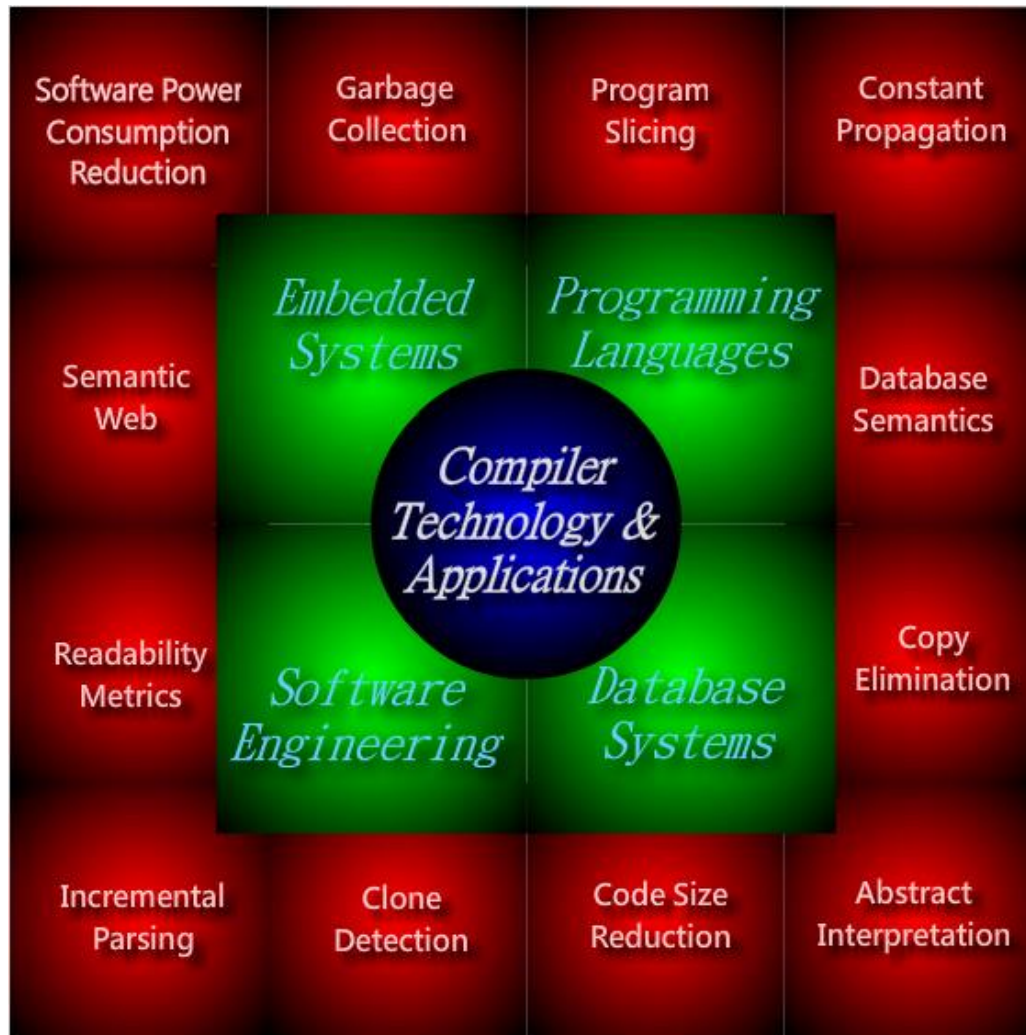
Also, we invoke to popularize our research results by implementing the related algorithms with parallel techniques and then simulating and analyzing them.





# Compiler Technology and Application Laboratory

## Research Domain



**Chung Yung** Assis. Professor

Education Background:  
Dept. of Computer Science,  
New York University, U.S.A.

Research Interest:  
Cloud Computing, Web Technology, Mobile  
Software, Compilers

Tel : 8634017 Office : 工C310  
實驗室：編譯技術與雲端計算實驗室  
(工C315;分機：4046)



# ~ Extracurricular Activities ~

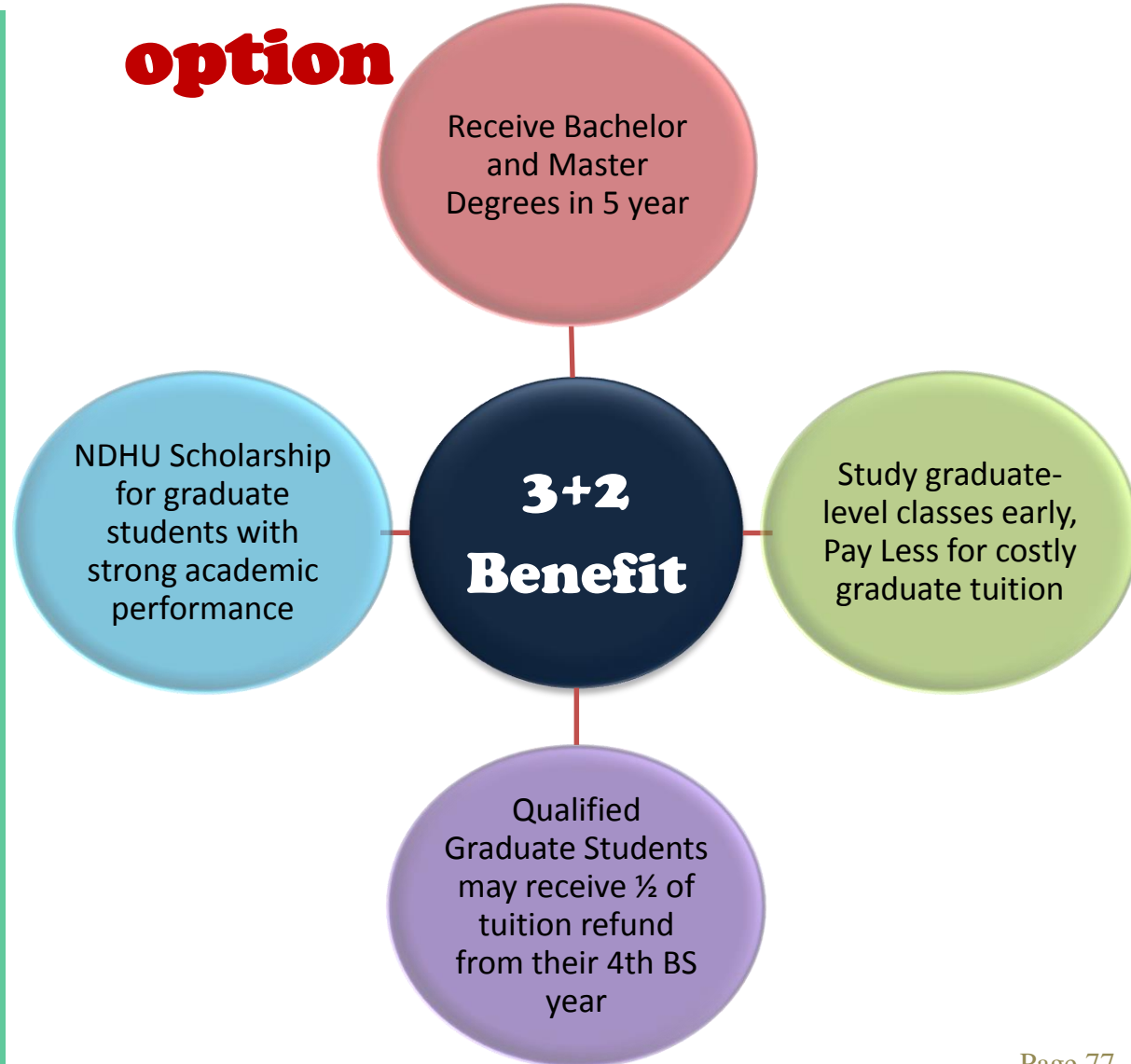




# NDHU CSIE—5 Year for Bachelor & Master

- Beginning from the 2<sup>nd</sup> semester of the 3<sup>rd</sup> year, undergraduate students can apply for the permission to study the graduate-level courses. Once approved, such students become “pre-qualified graduate students”.
- The pre-qualified graduate students should receive their bachelor degrees on or before the 2<sup>nd</sup> semester of the 4<sup>th</sup> year (or the 8<sup>th</sup> semesters in total), and participate the examination or the application selection to enter the master program. Once approved, such students become “true” graduate students of CSIE.
- Students pay full tuition fee in the 4<sup>th</sup> year, may apply for upto 50% refund in their 1<sup>st</sup> year of graduate study.

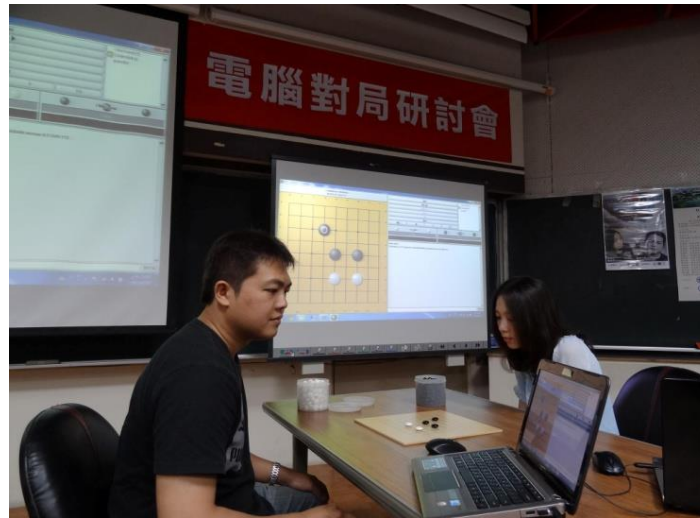
## option





# Great Achievements by our students (in AI field)

- **6 Gold 4 Silver 2 Bronze Prizes** from ICGA Computer Olympic Competition, 2020.
- Chinese Chess Artificial Intelligent Software—**NDHU 7**, successfully challenged human brain for the **World Record**, on **June, 30, 2013**.
- Chinese Chess Artificial Intelligent Software—**Cold Milk**, won Professional Chess Player (Level 5) in November, 2012.





# Great Achievements by our students



AI+4  
Data Security  
Cloud Gaming  
Computing  
Internet  
Social Network  
MANET, WSN  
Fog AR  
IoT  
Blockchain  
VR  
e-Learning  
Internet Security  
K12 Wearable  
FinTech  
Security  
5G  
SDN  
IR

THE 24TH  
**2018 TANET**  
Taiwan Academic Network Conference  
臺灣網際網路研討會@NCU

科技部資訊工程X智慧計算學門成果發表會

## 最佳論文獎

以區塊鏈建置學分幣完成公平的校園選課系統

楊慶隆, 陳識宇, 高語謙, 向思遠, 陸海量, 莊份庭

### 大會主席

教育部  
資訊及科技教育司代理司長

劉文惠

國立中央大學  
電子計算機中心主任

周立德

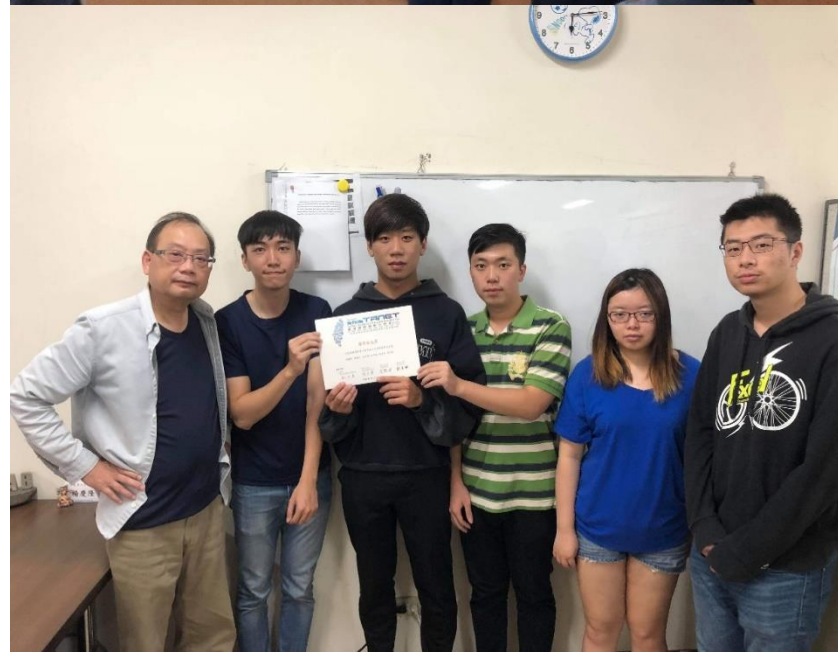
國立中央大學  
資電學院院長

范國清

國立中央大學  
管理學院院長

許秉瑜

中華民國 107 年 10 月 24 日





# Great Achievements by our students

- CSIE Students won Number# 1 Champion of 2016 ITSA Contest
- Sport Timing System used in East Coast Marathon was development by CSIE Ph.D./Master/Undergraduate students team.  
True example of from Prototype into Product!



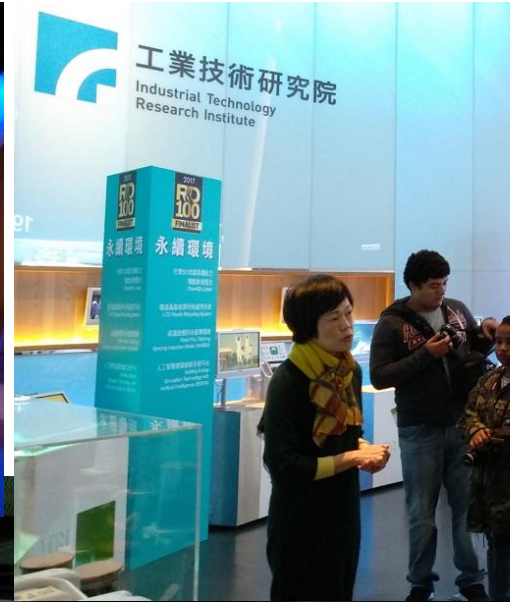
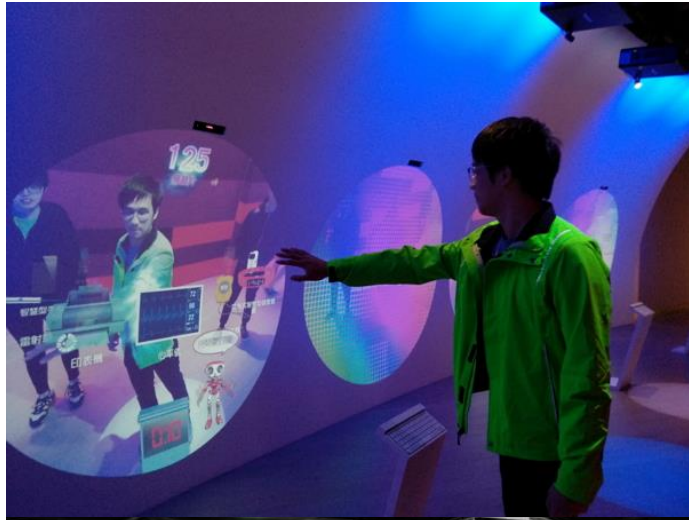


# Great Achievements by our students



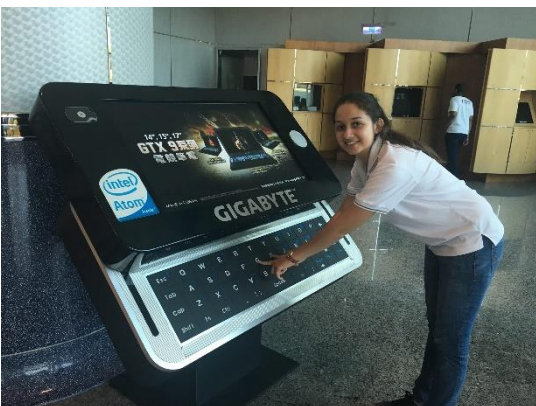
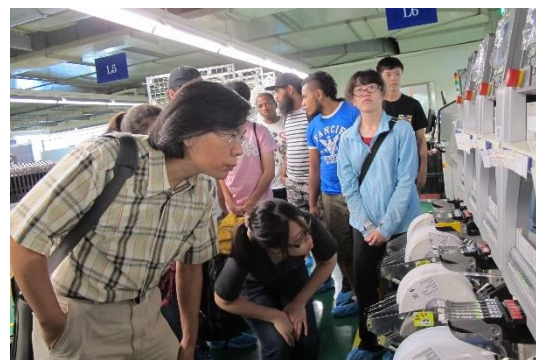


# NDHU CSIE , Industrial Visit





# NDHU CSIE , Industrial Visit





# Family-like study environment

- ✓ School Level—Offices of International Affair, Academic Affair, Student Affair
- ✓ Department—CSIE Family mentor teachers, family companions
- ✓ Staff—Bilingual Staff in department office
- ✓ Class—Classmates interaction
- ✓ Supporting Groups—Student Associations, Sport Teams, Religion gatherings...





# NDHU CSIE , Like A Family





# NDHU CSIE , Like A Family





# NDHU CSIE , Like A Family





# NDHU CSIE, Spirit of King !





# On-Campus Events w/ Int'l Students

## Int'l Cultural Festival & Fusion Cuisine Competition

2018.05.17





# On-Campus Events w/ Int'l Students

## Int'l Cultural Night on 2018.11.22





# Campus Events w/ CSIE Int'l Students

## Int'l Cultural Night on 2020.11.22





# **On-Campus Events w/ Int'l Students**

## **Int'l Cultural Night on 2020.11.22**





# **Benefits to study NDHU CSIE**

- ✓ **Amazing Natural Wonders / Comfortable Living Environment**
- ✓ **NDHU Scholarship for excellent students**
- ✓ **Great Academic / Research Environment**
- ✓ **Specious and Fully Equipped Research Lab**
- ✓ **Close interaction with professors and classmates**
- ✓ **Hands-On projects in all research labs**
- ✓ **Practical Training opportunities on-/off- campus,  
NDHU Innovation Incubation Center, and allied companies**



# Be Part of the Top Team ~Join Dept of CSIE, NDHU~

**Department of Computer Science & Information Engineering  
National Dong Hwa University, Taiwan, R.O.C.**

國立東華大學資訊工程學系

<http://www.csie.ndhu.edu.tw/en>

