美洲中國工程師學會大紐約分會

Chinese Institute of Engineers – USA
Greater New York Chapter
(CIE-USA/GNYC)
http://www.cieusa-gnyc.org
Saturday, October 27, 2018

2018 Annual Convention

Sheraton LaGuardia East Hotel
Flushing, New York

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President's Message

On behave of the Chinese Institute of Engineers, Greater New York Chapter, I would like to express my sincere and warm welcome to our distinguished guests, friends, and members to our 2018 Annual Convention.

This is the 101st Anniversary for the Institute as it as was founded in 1917 in The United States by a group of highly dedicated and innovative Chinese engineers who had graduated from American colleges and were being trained in American railroads and industries. Today our members are consisted of multiple engineering disciplines: from classical Civil Engineering, Mechanical Engineering, Chemical Engineering to modern Telecommunications, Microelectronics, Biomedical Engineering, and Software Engineering, etc. Our goal is to encourage the study and research in Engineering and Scientific areas, and to promote professional networking and collaboration among Chinese American engineering and scientists.

The convention theme this year is "AI is shaping our future — Innovations, Opportunities and Challenges". We select this theme to emphasize the Artificial Intelligence trends. In addition to the experts in five parallel sessions: "Machine Learning", "Advanced Semiconductor Technology", "Bio-medical Research/Health Science", "AI and Fintech", "AI and Machine Learning Applications", there will be a poster session by college and graduate students. The highlight of the evening Banquet includes the Annual Award presentation and the CIE-USA GNYC scholarship presentation.

For the first year of a new century, our Executive Committee and volunteers have been working very hard for this convention. In addition to them, I would like to express my appreciation to many sponsors and supporters who have helped and inspired us for many years.

Again, welcome to the 2018 CIE-USA GNYC Annual Convention in New York City!

Sincerely,

I-Hsin Chung, Ph.D.
President
Chinese Institute of Engineers, Greater New York Chapter

2018 CIE-GNYC Convention Planning Committee

President	I-Hsin Chung		
Convention Chair	Keith Kwong Hon Wong		
Program Chair	Monsong Chen		
Secretary	Ching-Huei Tsou		
Treasurer	Chung-Ching Lin		
Advisors	Chein-Chi Chang	C. Eric Wu	Tien-Jen Cheng
	Rong Chang	Kun-Lung Wu	Jun-Min Liu
	Pei-Yun Hsueh	Shu-Ping Chang	Chiao-Wei Lee
Convention Journal	Cheng-Yi Lin	Maxine Leu	
Master of Ceremony	Chiao-Wei Lee		
Award Committee	I-Hsin Chung	C. Eric Wu	Kun-Lung Wu
	Monsong Chen	Howard Chen	Tien-Jen Cheng
	Keith Kwong Hon Wong	Yew-Huey Liu	Yuying Gosser
High School Scholarship	Howard Chen	Kun-Lung Wu	Ping-Tsai Chung
Technical Program	Ching-Yung Lin	Yuying Gosser	Dantong Yu
	Jinjun Xiong	Jia Chen	Yingli Tian
Proceedings	Cheng-Yi Lin	Monsong Chen	
Fund Raising	I-Hsin Chung	Chung-Ching Lin	
Public Relation	I-Hsin Chung	Tien-Jen Cheng	Fred Yan
Website Development	Yew-Huey Liu		
Registration	Yew-Huey Liu	Alice Wong	Sa-Li Su
	Qiuyun Yao		
Membership	Ching-Yi Lin	Ming-Hung Chen	
On-site Management	Yew-Huey Liu	Alice Wong	Kate Jou
Student Volunteer	Wen-Sen Lu		
Photography	Rong Chang	Wen-Sen Lu	
Video & Equipment	Ching-Yi Lin	Ming-Hung Chen	
Seat Arrangement	Keith Kwong Hon Wong	I-Hsin Chung	C. Eric Wu
Entertainment	Howard Chen		

CIE-USA/GNYC 2018 Annual Convention Program
Sheraton LaGuardia East Hotel, Flushing, NY 11354

Theme: *AI is shaping our future — Innovations, Opportunities and Challenges*

人工智慧正在塑造我們的未來 — 創新、機會、與挑戰

Saturday, October 27, 2018

12:00 PM **Registration**

1:00 PM - 2:30 PM **Opening Remarks**

Gallery Room

Dr. Keith Kwong Hon Wong（黃洸漢）- *Convention Chair*

State of the Institute

Dr. I-Hsin Chung（鍾一新）- *President, CIE-USA/GNYC*

Plenary Session

Chair – Dr. Tien-Jen Cheng（鄭天人）- *Lam Research*

Prof. Kang L. Wang（王康隆）
Dept. of ECE, Physics and Astronomy, and MSE, UCLA
Member of Academia Sinica, Laureate of Industrial Technology Research Institute, Fellows of Guggenheim, American Physical Society and IEEE
"From Turing to Topological Quantum Computer"

Mr. Clement Lin（林茂昌）
Co-Founder & CEO of NEXCOM International Co., LTD
"Open Standards for Robots, Industry 4.0, etc"

2:20 PM - 2:30 PM **Poster Announcement**

Co-Chair – Prof. Dantong Yu（于丹彤）- *New Jersey Institute of Technology*
Poster Presenters, one minute each

2:30 PM **Tea & Coffee Break**

2:40 PM - 4:00 PM **Parallel Session**

Session I – Machine Learning
(Boardroom East)

Chair – Dr. Jinjun Xiong（熊瑾珺）- *Program Director, Cognitive Computing, IBM Research*

Dr. Xiaodong Cui（崔晓东）- *Research Staff Member, IBM Research*
"Large Scale Deep Learning for Automatic Speech Recognition"

Prof. Bo Yuan（袁博）- *Dept. of Electrical and Computer Eng., Rutgers University*
"Energy-Efficient High-Performance Deep Learning Systems: Algorithm and Hardware Design"

Dr. Yulong Li（李宇龙）- *Research Staff Member, IBM Research*
"Accelerating Machine Learning using Neuromorphic Computing"

Session II – Advanced Semiconductor Technology
(Boardroom West)
Chair – Mr. Cheng-Yi Lin（林政毅）- *IBM Systems*

Dr. Jianshi Tang（唐建石）- *Research Staff Member, IBM Research*
"Carbon Nanotubes: From Logic Technology to Flexible Electronics"

Dr. Kafai Lai（黎家辉）- *RSM, IBM Research, Fellow of SPIE & OSA*
"Recent Advances in Lithography for Aggressive Circuit Scaling to Cope with the Challenges in Variation and Efficiency - Novel Technology and Machine Learning"

Dr. Jin-Ping Han（韩金萍）- *Research Staff Member, IBM Research*
"Bio-inspired Dynamic Frondend for Speech Recognition"

Session III – Bio-medical Research/Health Science
(Gallery Room)
Chair - Dr. Jia Chen（陳佳）- *Offering Leader, IBM Academy of Technology Leadership*

Prof. Ming-Ming Zhou（周明明）- *Chair, Icahn School of Medicine at Mount Sinai*
"From Epigenetic Structural Mechanism to Targeted Therapy"

Dr. Lingyan Shi（石玲燕）- *PostDoc Research Associate, Columbia University*
"Mapping the Inner Workings of a Living Cell using D_2O labeled Stimulated Raman Scattering Imaging Technology"

Dr. Jia Chen（陳佳）- *Offering Leader, IBM Academy of Technology Leadership*
"Applying AI and Blockchain in Healthcare & Life Sciences"

4:00 PM **Tea & Coffee Break**

4:10 PM - 5:30 PM **Parallel Sessions**

Session IV – AI and Fintech
(Boardroom East)
Chair – Dr. Ching-Yung Lin（林清詠）- *CEO, Graphen, Inc., Adjunct Prof. at Columbia University*

Dr. Ching-Yung Lin（林清詠）- *CEO, Graphen, Inc., Adjunct Prof. at Columbia University*
"AI for Fintech"

Dr. Jie Lu（呂潔）- *CTO, Graphen, Inc.*
"AI for Anti Money Laundering"

Dr. Hui Shao（邵暉）- *Director, Bank of America*
"Risk Analytics"

Session V – AI and Machine Learning Applications
(Boardroom West)
Chair - Prof. Yingli Tian（田英利）- *Dept. of Electrical Engineering, CCNY, Fellow of IEEE*

Prof. Yingli Tian（田英利）- *Dept. of Electrical Engineering, CCNY, Fellow of IEEE*
"Can Computer Vision Help the Blind to See?"

Dr. Xiaoping Tang（唐小平）- *Google*
"How Machine Learning Is Used in Advertising"

Prof. Rex Wong（王希亮）- *Dept. of Engineering and Technology, Vaughn College*
"The AI Based Robotic Sensor Network in Senior Homecare of the Aging Society"

Session VI – Poster Presentation
(Ballroom Hallway 2:40 PM – 5:30 PM)
Co-Chair: Prof. Yuying Gosser（仇玉英）- *City College of CUNY*
Co-Chair: Prof. Dantong Yu（于丹彤）- *New Jersey Institute of Technology*

5:30 PM **Social**

6:00 PM - 9:30 PM **Banquet**

Phoenix Ballroom

MC – Mr. Chiao-Wei Lee（李僑韋）

Welcome Address – Dr. I-Hsin Chung（鍾一新）- *President, CIE-GNYC*

Talent Performance by Scholarship Recipients
Dr. Howard Chen（陳浩）- *HS Scholarship Committee Chair*

Keynote Speech
Dr. Yuh-Jier Mii（米玉傑）
Senior Vice President, Research & Development / Technology Development, TSMC
"Semiconductor Industry and Innovation Outlook"

Awards Ceremony
Chair – Dr. C. Eric Wu（吳振藩）- *Award Committee Chair*

Distinguished Service Award
Dr. Yuh-Jier Mii（米玉傑）
Senior Vice President, Research & Development / Technology Development, TSMC

Distinguished Achievement Award
Prof. Kang L. Wang（王康隆）
Dept. of ECE, Physics and Astronomy, and MSE, UCLA
Member of Academia Sinica, Laureate of Industrial Technology Research Institute, Fellows of Guggenheim, American Physical Society and IEEE

Distinguished Achievement Award
Mr. Clement Lin（林茂昌）
Co-Founder & CEO of NEXCOM International Co., LTD

Chinese Institute of Engineers Centennial Medal
Mr. William Yeh（葉振忠）
Founder & CEO of CSI Technology Group

Institute Service Award
Dr. Kun-Lung Wu（吳坤龍）
CIE-USA/GNYC President (2017)

Institute Service Award
Dr. Howard Chen（陳浩）
Program Director of CIE-USA Centennial Convention in 2017

High School Student Scholarship Awards
Alan Chang（張逸文）- *Byram Hills High School*

Alison Chen（陳安瑜）- *Horace Greeley High School*

Jonathan Fan（范晁瑋）- *Scarsdale High School*

Andrew Lu（盧奕正）- *Yorktown High School*

Steven Mi（米子杰）- *East Brunswick High School*

Isabelle Peng（彭慧如）- *The Lawrenceville School*

Diane Yang（楊得安）- *Yorktown High School*

9:30 PM **Raffle Drawing**

ACKNOWLEDGEMENT: CIE-USA/GNYC Thanks All Committee Members for Their Dedication and Hard Work That Make This Convention Possible.

2018 CIE-USA/GNYC Award Citations

Distinguished Service Award

Dr. Yuh-Jier Mii (米玉傑博士)
For his vision and leadership in the semiconductor industry.

Distinguished Achievement Award

Dr. Kang L. Wang (王康隆院士)
For his vision and leadership in magnetic memory technologies and topological spintronics.

Mr. Clement Lin (林茂昌先生)
For his vision and leadership in growing Nexcom to the forefront of Industry 4.0, Robotics, IOT, and pushing such industries in Taiwan.

Chinese Institute of Engineers Centennial Medal

Mr. William Yeh (葉振忠先生)
For his contribution to information-sharing technology and integrated case management system.

Institute Service Award

Dr. Kun-Lung Wu (吳坤龍博士)
For his devoted service to this institute.

Dr. Howard Chen (陳浩博士)
For his devoted service to this institute.

Keynote Speaker & Distinguished Service Award

Dr. Yuh-Jier Mii

Senior Vice President, Research & Development / Technology Development, TSMC

Education:
PhD, Electrical Engineering, University of California, Los Angeles, USA
Experience:
Vice President, Technology Development in R&D, TSMC

Dr. Yuh-Jier Mii is a senior vice president of TSMC Research and Development, responsible for advanced technology development. Prior to this post, Dr. Mii had served as vice president, senior director, and director of Research and Development in TSMC since 2001. He had successfully managed many generations of important technology development in TSMC, including: 90nm, 40nm, 28nm, 20nm, 16nm, 10nm, 7nm, and 5nm, which accelerated TSMC to world technology leading position.

Dr. Mii joined TSMC in 1994 as a Fab engineering manager, responsible for transfer and ramp-up of TSMC leading edge technologies from R&D to Fab. From 1999 to 2001, he had also served to be in charge of cross fab technology transfer, and had established a successful Fab to Fab technology transfer methodology in TSMC.

Dr. Mii had been a research staff member at IBM Research before joining TSMC.

He holds a B.S. in electrical engineering from National Taiwan University, as well as an M.S. and Ph.D. in Electrical Engineering from the University of California, Los Angeles (UCLA).

Distinguished Achievement Award

Dr. Kang L. Wang

Dr. Kang L. Wang is Distinguished Professor and the Raytheon Chair Professor at the University of California, Los Angeles (UCLA). He is affiliated with the Departments of ECE, MSE and Physics. He received his B.S. from the National Cheng Kung University, Taiwan, and his M.S. and Ph.D. from the Massachusetts Institute of Technology. He was a Guggenheim Fellow, and is Fellows of American Physical Society and IEEE. He is a Member of Academia Sinica and a Laureate of the Industrial Technology Research Institute of Taiwan. His Awards include the International Union of Pure and Applied Physics Magnetism Award and Néel Medal, IEEE J.J. Ebers Award for electron devices, SRC Technical Excellence Award, and the Pan Wen-Yuan Award and others. He also served as the editor-in-chief of IEEE TNANO, editor of Artech House, editors for Spins and other journals, and Deputy Editor for AAAS Science Advances.

He demonstrated Ge MOS transistor while he was at the General Electric Research and Development Center at Schenectady, NY. In 1979, he joined UCLA and continued to work on strained SiGe and assessing its benefits for MOSFET, leading to industrial implementation of strained Si in CMOS technology after the 65 nm node.

After 2000, he led several research centers, notably in spintronics under the Nanoelectronics Research Initiative for a semiconductor industry consortium (WIN) at UCLA in the past decade (2005-2013) for which he defined the technical directions of spintronics research and development. He also led a major nation-wide nanomaterials consortium (FENA, 2003-2013) at UCLA funded by the US Department of Defense and the semiconductor industry. The FENA Center was continued by the center of Functional Accelerated Materials Engineering, FAME. His work in spintronics helps making today's integration of spintronics with CMOS possible.

His work had incubated for the observation of quantum spin Hall effect and Quantum Anomalous Hall in topological insulators. More recently, his students experimentally showed the first convincing evidence of quantized signature of Majorana Fermion, for potential topological quantum computing.

He and his wife, Edith, met and married at MIT where they studied their Ph.D. degrees. They have three children, Alexander, Benjamin and Evelyn who pursued in computer engineering software, chemical & bioengineering, and mechanical engineering professions, respectively.

Distinguished Achievement Award

Mr. Clement Lin

Clement Lin is the Co-Founder & CEO of NEXCOM International Co., LTD since 1992 which is in the market of Embedded Systems or so-called Industrial PC, IPC. Before that, he worked as the System BU head in Mitac International Co., LTD. He was the first Product Manager of Taiwan PC industry since 1984, as the PM of the first 8088 based PC of Mitac.

As the 4 person start-up company, NEXCOM won an ODM business with its first 486 graphic workstation in 1993. It's the fastest H/W platform running the advanced NeXTSTEP 486 operating system from NeXT Computer founded by Steve Jobs. Besides, NEXCOM was leading all the way delivering the new and innovative products, like the world's first dual Pentium pro IPC, also delivering the world's leading Compact PCI and Blade Server systems. Today, NEXCOM is still leading the world delivering the Robot, IoT, and Industry 4.0 solutions based on the Open Standards!

Seeing the booming PC and Smart Phone industries, Clement believes that the Open Standards are necessary for the booming Eco-Systems of Robots, IoT, and the Industry 4.0. That's why Clement is leading the NEXCOM group to heavily promote the Open Standards worldwide, and got very strong support from the enterprises, the education systems, also the government agencies.

Being 30 years in the IT industry, Clement sees the ups & downs of the market and companies with ever growing scale to $Trillions of the Industry 4.0 market(forecast) today. Clement is very optimistic on the coming true of the huge forecast of the Industry 4.0 market. That's why NEXCOM offers the free downloads of the IoT & Robot development kits as "the Easiest IoT/Robot Builder", and various training programs to help build the booming Eco-Systems of the Open Industry 4.0.

Chinese Institute of Engineers Centennial Medal

Mr. William Yeh

William Yeh founded CSI Technology Group in 1990. He held a vision of providing superb software solutions to government agencies by focusing on his clients' needs, supporting them with the most innovative technology available and providing outstanding customer service at a reasonable price. He continues to lead his company as President and CEO, overseeing the operations and strategic direction of CSI, as he develops superior information technology products for public safety and other government agencies.

CSI sold its first Prosecutors' Case Management System to the Atlantic County (NJ) Prosecutor's Office in 1997. Because of Yeh's dedication to customer support and innovative technology, word spread of CSI's InfoShare™ system, and today it is used by every county prosecutor's office in New Jersey, as well as in other states. As CSI gained recognition as a leading provider of web-based case and document management systems for criminal justice agencies, Yeh and his company went on to collaborate with local and state police and the NJ Office of Homeland Security to design tools and modules that enable the sharing of intelligence data among law enforcement agencies nationwide. CSI also provided the first electronic filing system for the NJ Appellate Court and launched a public safety CAD/RMS system with e-ticketing capabilities for local and regional police. CSI is continually advancing its software, expanding access to mobile platforms, cloud computing and leveraging other emerging technologies.

Mr. Yeh has partnered with forensic experts, including the world-renowned Dr. Henry Lee, law enforcement leaders and legal scholars to develop solutions that help his customers fully utilize and share critical information across horizontal and vertical boundaries at all levels of government. He contributes to law enforcement technology forums and associations and brings the latest advances in technology, data sharing, communication and analysis to his clients, increasing their capacity to serve and protect their citizens. "Our goal is to make society safer," he explains, as he continues to guide CSI to be a company that makes a difference in public safety and government services.

Born in Taiwan, William Yeh holds a BS degree in Chemical Engineering from the National Taipei University of Technology and an MS in Engineering from the New Jersey Institute of Technology. He is a past chairman of Monte Jade Science and Technology Association (East Coast) and has served as a board member for the Telecommunications Advisory Committee of the Ministry of Transportation and Communications in Taiwan.

Institute Service Award

Dr. Kun-Lung Wu

Dr. Wu is the Manager of the AI First – Performance and Scale Group, IBM Research AI, at the IBM T. J. Watson Research Center. He is also the Manager of the IBM Streams Language, Compiler, Programming Model and Research Team, IBM Hybrid Cloud. The combined team currently engages in the research and product development for the IBM Streams product – a real-time analytics platform for large-scale, distributed event data processing, available in public cloud, private cloud and on-prem. In addition, his group studies various research issues in big data systems and applications – including programming language and model; automatic exploitation of data parallelism; fault tolerance and application resiliency; deep neural networks and reinforcement learning for automatic system performance tuning; parallel algorithms for exploiting multicore processors; job management, scheduling, resource management and system optimization.

An IBM Master Inventor, Dr. Wu is also a Fellow of the IEEE, and a member of the ACM. From 2000 to 2004, he was an Associate Editor for IEEE Transactions on Knowledge and Data Engineering. He also served as an organizing or program committee member for many international conferences and workshops. He has received several IBM awards, including an IBM Corporate Environmental Affair Excellence Award, an Outstanding Technical Achievement Award, a Research Division Award, and 20 Invention Achievement Awards. He has published extensively in various journals and refereed conferences, and received several best paper awards. He also holds or has applied for over 75 patents.

Dr. Wu served as the President of CIE-GNYC in 2017, Vice-President of CIE-GNYC in 2016, and a member of the CIE-GNYC Board of Director, 2014-2017. He is currently a member of the CIE-GNYC Advisory Committee.

Institute Service Award

Dr. Howard Chen

Dr. Howard Chen received his Ph.D. degree in electrical engineering and computer sciences from the University of California, Berkeley in 1987. From 1987 to 2013, Dr. Chen worked at the IBM Research Division, Thomas J. Watson Research Center, in Yorktown Heights, New York, where he had been involved in the design and implementation of many IBM eServer products, including S/390, AS/400, PowerPC, pSeries, and zSeries. He also worked with IBM clients and participated in the design of Apple Power Mac, Nintendo GameCube, Microsoft Xbox, and Sony PlayStation processors. As a prolific inventor holding 37 U.S. patents, Dr. Chen has received numerous IBM Invention Achievement Awards for his creative contributions to IBM progress. He also received the IBM Outstanding Contribution Award for design and realization of the Alliance G5 microprocessor, the IBM Research Division Award for design and implementation of Freeway G7 microprocessor, and the Outstanding Technical Achievement Award at IBM's Corporate Technical Recognition Event.

Best known for his pioneering work on chip and package power supply noise analysis, Dr. Chen has published over 60 technical papers in professional journals and the proceedings of international conferences. He has also given tutorials and workshops at the Design Automation Conference (DAC), the Asia and South Pacific Design Automation Conference (ASP-DAC), the European Solid-State Circuits Conference (ESSIRC), and the International Solid-State Circuits Conference (ISSCC).

From 2010 to 2013, Dr. Chen served as a board director of the Chinese Institute of Engineers, Greater New York Chapter (CIE-NY). He was the program chair of CIE-NY convention in 2010, the treasurer of CIE-NY in 2011 and 2012, and the president of CIE-NY in 2013. In 2015, he received the dynamic achiever award from the Organization of Chinese Americans (OCA). From 2015 to 2017, he devoted thousands of hours to planning and organizing the CIE-USA Centennial Convention, which was successfully held in New York. Currently, Dr. Chen serves on the board of OCA Westchester and Hudson Valley Chapter.

Chinese Institute of Engineers, USA/GNYC
2018 Annual Convention

Sheraton Hotel, Flushing, New York
Saturday, October 27, 2018

Plenary Session

(1:00pm-2:30pm – Gallery Room)

Session Chair

Dr. Tien-Jen Cheng (鄭天人) Lam Research

Plenary Speaker

Prof. Kang L. Wang (王康隆) University of California, Los Angeles

Mr. Clement Lin (林茂昌) Co-Founder & CEO of NEXCOM International Co., LTD

Plenary Session

Session Chair

Dr. Tien-Jen Cheng (鄭天人)
Lam Research
Tien.Cheng@Lamresearch.com

Biography:

Dr. Tien-Jen Cheng received his B.S. degree in Chemical Engineering from the National Taiwan University, and a Ph.D. degree in Chemical Engineering from the University of Rochester. Before joining IBM Microelectronics Division in Fishkill in 1996, he had been a Development Engineer at the Alcoa Electronic Packaging in San Diego for five years. Dr. Cheng has dedicated his career on the Process Development for Semiconductor Manufacturing, from FEOL CVD process for Silicon Oxide and Nitride to BEOL Low-k Inter-Level Dielectrics and Cap films; and the copper and cobalt electrofill processes for BEOL, MEOL, and 3Di TSV (through silicon via) metallization, wafer finishing, and C4 chip joint applications. Dr. Cheng has published over 33 US Patents and been regularly contributing to Journals and International Conferences. He was the recipient of IBM Outstanding Technical Award and lead a development team with alliance partners at the IBM Semiconductor Research and Development Center in Fishkill, New York, collaborating with research teams from Yorktown and Albany Nanotech Center on the development of advanced CMOS technologies. In July 2015, Dr. Cheng joined the Advanced Technology Development Team of the Globalfoundries for 7nm process development as the result of a business transaction between IBM and Globalfoundries. Currently, Dr. Cheng is a Key Account Technologist at the Electrofill Business Unit of Lam Research in Portland Oregon, working with multiple technical teams around the world on the most advanced semiconductor technologies.

Dr. Cheng has been heavily involved in community activities. He was a Counselor, a Teacher for the Study Hall and Calligraphy, a School Board Member, the Principal and Chairman of the Board at the Northern Westchester Chinese School (NWCS). Dr. Cheng also served as the Director for the Association of Chinese Schools (ACS) and was elected the President of the ACS in 2009. He had organized many community events to promote Chinese education and culture, including a Folk Song Concert at the Queens College in 2009, and the Joint ACS Annual Meeting with New Jersey Schools in 2010. He was also a Board member for the National Council of Associations of Chinese Language Schools (NCACLS). In 2012, Dr. Cheng was elected a Board of Director for the CIE-USA GNYC, and the Treasurer for the CIE-USA National Council. He has taken the responsibility as the Secretary, Treasurer, Vice President, and the President (in 2015) for the CIE-GNYC, the Vice President of the Chinese American Semiconductor Professional Association (CASPA) Albany Chapter, and the Chair for Technical Program of 2016 AAEOY and the Chair for Centennial Symposium of CIE USA in 2017. Presently Dr. Cheng is a Committee Chair for the CIE-USA GNYC, and a proud volunteer, and occasional substitute teacher at the NWCS and ACS Regional events.

Plenary Session Speech Topic

From Turing to Topological Quantum Computer*

Kang L. Wang
Distinguished Professor and Raytheon Chair Professor
Departments of ECE, Physics and Astronomy, and MSE
University of California, Los Angeles, CA 90095, USA, wang@seas.ucla.edu; P: 310-825-1609

Abstract

Today's computer has changed our world and social behavior since last century. These computers use 0 and 1 to perform computing in a **sequential** manner by fetching a memory and processing the information, known as Turing machine. As implemented in semiconductor technology, however, the computing performance has slowed down due to energy dissipation as the scaling of the size approaches the physical limit, in particular when handling big data, machine learning and information processing. The talk will present a general discussion on Today's von Neumann computers and neuromorphics systems. Quantum computer potentially offers a drastically different way of computing in a massively **parallel** using quantum bits (qubits), for which the qubits are superimposed or entangled in the sense that 1 and 0 could not be taken apart. However, the superposition and entanglement need to maintain phase coherence, which is the key challenge for realization and for scaling up the number of qubits in quantum computing. Topological quantum computer protects the qubits and markedly increases the coherence time of superposition and entanglement, and thus makes possible scaling of qubits for solving many unsolvable complexity problems, including drug discovery, anticipation and prevention of natural disasters, e.g., earthquakes. By reducing 3 dimensional systems to two dimensions using Majorana particles as qubits, such topological quantum computer may be realized. In 1937, Ettore Majorana proposed a particle being its antiparticle. Since its inception, Majorana has been under intensive pursuit both theoretically and in experiments. I will discuss the quest and recent confirmations of Majorana by my group. Such kind of topological quantum computer using Majorana may enable new generations of computing and information processing.

[1]. Qinglin He, .. Kang L Wang, Science, V.357, Issue 6348, pp. 294-299 (21 July, 2017);
[2]. Hao Zhang, … Leo Kouvenhoven, Nature V.556, pages 74–79 (05 April 2018)

*The work was in part supported by NSF, MURI-ARO, TANMS, and ERFC-SHINES.

Plenary Session Speech Topic

Open Standards for Robots, Industry 4.0, etc.

Clement Lin
Co-Founder & CEO
NEXCOM International Co., LTD.

Abstract

The forecasts of robots, IoT, or Industry 4.0 are very positive, up to billions in units and trillions in revenues per year. However, the progress is still limited because the majority is still closed architecture. The open standards could be the key for the booming eco-systems of robots and Industry 4.0, just like the PC and smart phone industries. Then all the huge forecasts could come true.

AI robots could give everyone much more leisure time for trying new things. The human society will evolve faster. Also the green power will prevail over the fossil power, the global warming could be controlled?

Convention Chair

Dr. Keith Kwong Hon Wong (黃洸漢)

Globalfoundries
keithwongk@gmail.com

Biography:

Dr. Keith Kwong Hon Wong is a Principal member of Technical Staff in Semiconductor Unit Processing at GlobalFoundries. His expertise is to develop and implement leading edge metal deposition processes for FEOL, MOL and BEOL applications. He received his Ph.D. in Electrochemistry and Electro-analytical Chemistry from University at Buffalo, The State University of New York. He started his career as a postdoc at the T.J. Watson Research Center in Yorktown Heights, New York, working on the fundamental electrochemistry of soft magnetic alloy plating. He later joined as a staff scientist in the Advanced Packaging Center at IBM, East Fishkill, researching very high density interconnect metallization in the Thermal Conduction Modules (TCM) used in IBM's high-end computers.

While experimenting with the various metallization technologies at Yorktown lab, Dr. Wong and his co-workers discovered an electroplating process resulting in superior properties of copper interconnects in semiconductors, the first in the semiconductor industry. This later became known as the "Copper Chip" as it was adopted across the rest of the industry. This revolutionary piece of work and the seminal patent granted by the U.S. Patent Office were honored as the recipients of the 2006 Inventor of the Year Award by the New York Intellectual Property Association. After the Thermal Conduction Module project, Dr. Wong joined the Advanced Semiconductor Technology Center (ASTC), also in IBM East Fishkill, to work on various semiconductor modules and processes. ASTC later became the Semiconductor Research and Development Center which hosts joint semiconductor research and development with various leading semiconductor companies across the world. Dr. Wong has been the team lead of the Alliance Metallization Process Development Team in East Fishkill, which at one time consisted of scientist and engineers from nine companies based across the U.S., Asia and Europe. He is currently working on metal gate and MOL interconnects.

Dr. Wong has authored and co-authored over 30 technical papers and conference proceedings and has published a book chapter on metallization in semiconductor packaging. He has received a Corporate Patent Portfolio Award, multiple Outstanding Technical Achievement Awards, and High Value Patent Awards. He has been an IBM Master Inventor since 2006 and has been granted 278 US and 156 International Patents. He has coached and mentored junior engineers over the past ten years on technical advancement and patenting process.

He is currently the Vice-President of CIE-USA/GNYC. Outside his technical work, Dr. Wong actively serves the Mid- Hudson Chinese Christian Church and the Mid-Hudson Chinese Community Association, and had been a board member of the Northern Westchester Chinese School. He was awarded a President's Volunteer Service Bronze Medal from Corporation for National & Community Service in 2013.

Program Chair:

Dr. Monsong Chen (陳孟松)
Founder, President, CEO
InfoValue Computing, Inc
mchen@infovalue.com

Biography:

Dr. Monsong Chen is the co-founder and CEO of InfoValue Computing. InfoValue develops, markets and deploys premium IPTV, streaming, signage and interactive TV technologies and solutions for multiple markets, such as enterprise, healthcare, hotel and education markets.

Prior to InfoValue, Dr. Chen was a Research Staff Member and Manager at IBM Watson Research Center for research projects in multimedia networking, high speed network architecture, optical communications and protocol engineering.

Dr. Chen received his Ph.D. from NYU Polytechnic School of Engineering, Brooklyn, NY, MSEE from University of Washington, Seattle, WA and BSEE from National Taiwan University, Taipei, Taiwan.

Chinese Institute of Engineers, USA/GNYC
2018 Annual Convention

Sheraton Hotel, Flushing, New York
Saturday, October 27, 2018

Session I

Machine Learning
(2:40pm-4:00pm – Boardroom East)

Session Chair

Dr. Jinjun Xiong (熊瑾珺)	Program Director, Cognitive Computing, IBM Research

Session Speakers

Dr. Xiaodong Cui (崔晓东)	Research Staff Member, IBM Research
Prof. Bo Yuan (袁博)	Dept. of Electrical and Computer Eng., Rutgers University
Dr. Yulong Li (李宇龙)	Research Staff Member, IBM Research

Session I: Machine Learning

Session Chair

Dr. Jinjun Xiong (熊瑾珺)
Program Director
Cognitive Computing Systems Research
IBM T.J. Watson Research Center
Yorktown Heights, New York, 10598

Biography:

Dr. Jinjun Xiong is a program director for cognitive computing systems research at the IBM T.J. Watson Research Center and a co-director of the IBM-Illinois Center for Cognitive Computing Systems Research (www.c3sr.com). His research interests include cognitive computing, big data analytics, deep learning, smarter energy, and application of cognitive computing for industrial solutions. Xiong received a PhD in electrical engineering from the University of California, Los Angeles. He has received three Best Paper Awards, one Best Paper in Track Award, and eight nominations for Best Paper Awards. He is an IBM Master Inventor and has received various IBM technical achievement awards and the IEEE Region One Outstanding Technical Contribution Award.

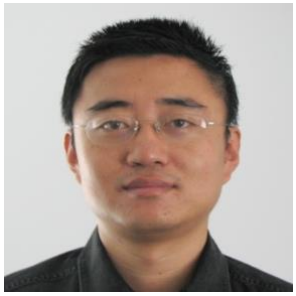
Introduction to the Session:

As machine learning and deep learning gains momentum in wide area adoption to solve many practical problems, this session tries to shed some lights on these trends from experts from both the academia and industrial sectors. This session will include presentations on large scale deep learning and how it can be used to solve the automatic speech recognition problem and designing energy-efficient hardware systems for deep learning.

Large scale deep learning for automatic speech recognition

Session Speaker:

Dr. Xiaodong Cui (崔晓东)
Research Staff Member
IBM Research AI
IBM T. J. Watson Research Center
Yorktown Heights, NY 10598
Email: cuix@us.ibm.com



Biography:

Dr. Xiaodong Cui is a Research Staff Member at IBM T. J. Watson Research Center, Yorktown Heights, New York. He received the B.S. degree from Shanghai Jiao Tong University, the M.S. degree from Tsinghua University, and the Ph.D degree from University of California, Los Angeles, all in electrical engineering. He joined IBM in 2006 and has contributed to numerous US government and IBM internal projects on multilingual speech recognition, spoken term detection, and speech-to-speech translation. His research interests include deep learning in acoustic modeling, multilingual learning, automatic speech recognition and machine learning. Xiaodong Cui is an IEEE senior member and an associate editor of IEEE/ACM Transactions on audio, speech and language processing. He is also an adjunct professor of the department of electrical engineering of Columbia University.

Abstract:

Automatic speech recognition (ASR) has made significant progress in the past few years using large scale deep learning. In this talk, I will give an overview of some acoustic modeling techniques and research efforts based on neural networks with deep architectures for ASR by the speech group in IBM Research. Specifically, I will talk about a variety of acoustic models including deep convolutional neural networks (CNNs) and recurrent neural networks (RNNs) that give rise to the state-of-the-art ASR performance on some benchmark data sets and how the large scale optimization of such deep neural networks is carried out. On some of the data sets the ASR performance has reached human parity.

Energy-Efficient High-Performance Deep Learning Systems: Algorithm and Hardware Design

Session Speaker:

Dr. Bo Yuan (袁博)
Assistant Professor
Department of Electrical and Computer Engineering
Rutgers, The State University of New Jersey
New Brunswick, NJ 08901
bo.yuan@soe.rutgers.edu

Biography:

Dr. Bo Yuan is the assistant professor in the Department of Electrical and Computer Engineering at Rutgers University. He received his bachelor and master degrees from Nanjing University, China in 2007 and 2010, respectively. He received his PhD degree from University of Minnesota, Twin Cities in 2015. His research interests include algorithm and hardware co-design and implementation for machine learning and signal processing systems, error-resilient low-cost computing techniques for embedded and IoT systems and machine learning for domain-specific applications. He is the recipient of Global Research Competition Finalist Award in Broadcom Corporation. Dr. Yuan serves as technical committee track chair and technical committee member for several IEEE/ACM conferences. He is the associated editor of Springer Journal of Signal Processing System.

Abstract:

The deep water horizon oil spill has posed great challenges to both robotics and ocean engineering communities. The challenges motivate us to consider utilizing advanced robotic techniques to monitor and track the propagation of oil plumes. I will present our recent research advances in distributed tracking of dynamic ocean plume by multi-robotic systems. Different from existing work on static level curve tracking that replies purely on gradient information, the transport model of pollution source is explicitly considered using the advection-diffusion model. An estimation and control framework is proposed, and the robots communicate in a nearest-neighbor topology to cooperatively track and patrol along the plume propagating front. Simulation results based on a robotic simulator, the Field Robotics Lab Vehicle Software, will be shown. I will also present our recent experimental testing at Makai Research Pier in Hawaii.

In the emerging artificial intelligence era, deep neural networks, a.k.a. deep learning, have gained unprecedented success in various applications. However, the large model sizes of state-of-the-art deep neural networks pose severe energy efficiency challenges on the future wide deployment of deep learning technique in many application scenarios. I will present our recent research on algorithm and hardware co-design for energy-efficient deep learning systems. Different from prior works, our proposed approach leverages the low-complexity structured matrix to achieve significant saving in both space and computational cost of deep learning. Then, I will introduce the corresponding hardware architecture and FPGA/ASIC implementations for speech recognition and image recognition. Experimental results show that the propose designs can achieve orders-of-magnitude improvement over the state-of-the-art work in term of energy efficiency and throughput.

Accelerating Machine Learning Using Neuromorphic Computing

Session Speaker:

Dr. Yulong Li (李宇龙)
Research Staff Member
IBM T. J. Watson Research Center
1101 Kitchawan Rd. Route 134
Yorktown Heights, NY 10598
yulongl@us.ibm.com

Biography:

Dr. Yulong Li is a research staff member at IBM T. J. Watson Research Center. He obtained his Ph. D. degree in Electrical and Computer Engineering at University of Minnesota, Twin Cities in 2016 and bachelor's degree in physics in University of Science and Technology of China (USTC) in 2010. Dr. Li's research interests include semiconductor devices, machine learning accelerator and brain inspired architecture & systems. Dr. Li is a member of the IEEE.

Abstract:

Deep neural networks (DNNs) are widely used for many machine learning and artificial intelligence (AI) applications, including computer vision, speech recognition, and robotics. However, training the DNNs is an extremely computationally intensive task. It usually requires massive computational resources and enormous training time that hinders its further application. Compared to conventional CPU/GPU systems, analog-based neural network accelerators (neuromorphic computing) have the potential to achieve orders of magnitude improvement in training time and energy consumption. In this talk I will introduce the approach of using neuromorphic devices to accelerate machine learning, its challenges and latest status.

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Session II

Advanced Semiconductor Technology
(2:40pm-4:00pm – Boardroom West)

Session Chair

Mr. Cheng-Yi Lin (林政毅) IBM Systems

Session Speakers

Dr. Jianshi Tang (唐建石) Research Staff Member, IBM Research

Dr. Kafai Lai (黎家辉) Research Staff Member, IBM Research, Fellow of SPIE & OSA

Dr. Jin-Ping Han (韩金萍) Research Staff Member, IBM Research

Session II: Advanced Semiconductor Technology

Session Chair

Mr. Cheng-Yi Lin (林政毅)
Product Yield Characterization Engineer
IBM Systems Group
IBM East Fishkill Site
2070 Route 52, B300,
Hopewell Junction, NY 12533
lincheng@us.ibm.com

Biography:

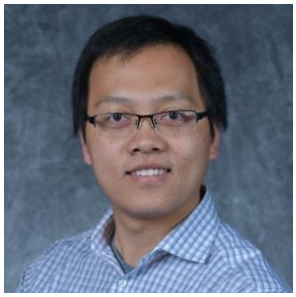
Mr. Cheng-Yi Lin, in the role as Product Yield Characterization Engineer at IBM, work on 14HP technology to drive delivery of high performance P9 server chips for IBM systems. His expertise includes data analysis/mining of in-line electrical signal, product yield and wafer final test results. To drive manufacturing improvement, he established pareto, designed and developed the specialized characterization steps, covering in-line functional macros, analytical processes, and applications that support the production and controls. Prior to joining IBM, he was employed by UCLA as a Research Assistant in the Duan and Device Research Laboratory. He prototyped and optimized a portable, internet-capable, and low-cost readout circuit for In_2O_3/RGO nanocomposite gas sensors. He achieved the functions of real-time I-V measurement, online data display, and automated SMS text/LED alert. During 2008 summer, he was employed by Taiwan Semiconductor Manufacturing Company (TSMC) as a Process Integration Intern, optimizing halo implant conditions via TCAD simulation for 35HV 13.5V PMOS in 0.35 μm technology.

Mr. Lin received his M.S. degree in Electrical Engineering (EE) from University of California, Los Angeles (UCLA), his B.S. degree in Power Mechanical Engineering and M.S. degree in Electronic Engineering from National Tsing-Hua University, Taiwan. He was awarded Government Scholarship to Study Abroad from Ministry of Education, Taiwan. He has published two technical papers and conducted numerous EE projects.

In 2016, he joined CIE as a lifetime member. He has been actively involved in the activities of CIE-USA GNYC. He was in charge of presentation setup during 2016 Asian American Engineer of the Year (AAEOY) and CIE-GNYC annual convention. He was selected as Honorary Member of Talent Net--Epoch Foundation since 2009 and was a member of IEEE.

Carbon Nanotubes: From Logic Technology to Flexible Electronics

Session Speaker:



Dr. Jianshi Tang (唐建石)
Research Staff Member
IBM T. J. Watson Research Center
1101 Kitchawan Rd.
Yorktown Heights, NY 10598
jtang@us.ibm.com

Biography:

Dr. Jianshi Tang is currently a Research Staff Member at IBM Thomas J. Watson Research Center. He obtained his PhD degree in Electrical Engineering from University of California, Los Angeles (UCLA) in 2014, and BS degree in Micro and Nanoelectronics from Tsinghua University in 2008. His research mainly focuses on the device and physics of nanomaterials, including carbon nanotubes, semiconductor nanowires, van der Waals materials, and magnetic nanostructures, and also explores their applications in logic technology, flexible electronics, spintronics, and neuromorphic computing. He has published more than 60 journal articles and delivered over 10 conference talks. He also has 4 issued patents and dozens more pending. He is a member of IEEE, APS, MRS and ECS. He also served on Technical Conference Committee for CMSE 2015, 2016, 2017 and MEAMT 2017. He has received many awards, including NT18 Best Young Scientist Award, multiple IBM Invention Achievement Awards, IBM Research Pat Goldberg Memorial Best Paper Award, and IEEE Nanotechnology Symposium Best Lightning Talk, *etc*.

Abstract:

The superior electrical properties of carbon nanotube (CNT) make it a promising replacement for silicon in scaled logic technology. In this talk, I will first introduce major challenges in developing high-speed CNT logic technology, and review our recent progress on CNT purification, placement, transistor scaling, as well as integration. Then, I will talk about another promising application for CNT, in the form of thin-film transistors (TFTs) for flexible electronics and sensors, enabled by their high mobility and mechanical flexibility. Our recent work at IBM Research demonstrates high-speed CNT CMOS integrated circuits, featuring the fastest flexible ring oscillator, can be built on flexible substrates with high yield using a scalable and reliable process. Furthermore, an integrated flexible pressure sensor is demonstrated with high sensitivity, high resolution, and fast response. Future applications of CNT TFTs by integrating flexible sensing, computation and communication will be discussed in the end.

Recent Advances in Lithography for Aggressive Circuit Scaling to Cope with the Challenges in Variation and Efficiency - Novel Technology and Machine Learning

Session Speaker:

Dr. Kafai Lai (黎家粹)
Research Staff Member, IBM Research,
Fellow of SPIE & OSA
IBM T. J. Watson Research Center
1101 Kitchawan Rd.
Yorktown Heights, NY 10598
kafailai@us.ibm.com

Biography:

Kafai Lai received his B.Sc. degree from the University of Hong Kong and a MS/Ph.D. degree in ECE from The University of Texas at Austin. He is currently working as a Senior Research Scientist in the T. J. Watson Research Center at IBM. He has been involved in both experimental and computational Lithography research, Design Technology Co-Optimization, EUV and Directed Self-Assembly Lithography and recently semiconductor photonics for a total of over 23 years. He has given numerous invited/keynotes talks and 3 different short courses at different international lithography & nano-patterning conferences. He is the overall co-chair of the SPIE Advanced Lithography Symposium 2019-2020 and the conference chair of the 2012-2015 SPIE Optical Microlithography Conference. Kafai has also been the symposium chair for the CSTIC conference in Shanghai 2009-2019. He serves as the editor for many proceedings and journals published by SPIE, OSA, ECS, IEEE, JAO. Due to his achievement in optical extension and pioneering work in SMO, he was appointed Fellow of SPIE, Fellow of OSA, and a senior member of IEEE.

Abstract:

The continuous advancement of photolithography in support of scaling according to Moore's Law has been more than amazing. Many Technical marvels that overcame diffraction limit have brought scaling from the 1um node down to nowadays the 5nm /3nm node. The scaling techniques cover physical (wavelength, NA), computational (OPC, SMO) and material-driven (DSA) innovation. However, device variability coming from dimensional variability (LER, LWR) are offsetting the gain from resolution. Emerging patterning technologies now need to overcome also the variability limit. On the other hand, these emerging technologies might be computational intensive and need much improvement in computational efficiency. Machine Learning based methodology might be able to provide a high efficiency boost. In this talk we will review using a holistic view on the technical aspects of photolithography focusing in solving the variability and efficiency issues and the corresponding Design Technology interlock.

Bio-inspired Dynamic Frondend for Speech Recognition

Session Speaker:

Dr. Jin-Ping Han (韩金萍)
IBM T. J. Watson Research Center
1101 Kitchawan Rd, Route 134
Yorktown Heights
NY 10598, USA
Email: hanjp@us.ibm.com

Biography:

Jin-Ping Han is currently research staff member at IBM T. J. Watson Research Center working on neuro-inspired computing for artificial intelligent (AI). Before coming to IBM Research in Jan. 2015, she had been IBM and Infineon technical lead for more than 10 years on IBM SOI and IBM-client (SMIC and SK Hynix) , IBM-Alliance (Infineon, Samsung, Toshiba, Freescale, NEC, ST, Chartered, AMD, Global Foundries) R&D projects on advanced CMOS scaling technologies from 65nm to 10/7nm in IBM Semiconductor R&D Center at Hopewell Junction and Albany NY as well as client site (SMIC Shanghai). She obtained her Ph.D degree in Electrical Engineering from Yale University in 2002. She was a postdoctoral research fellow at National Institute of Standards and Technologies from 2002 to 2004.

Abstract:

Despite continuous progress, speech recognition remains a difficult problem, especially in situations where the speech signals of interest are corrupted by noise or distracting signals from other sources. A promising approach is to inject direction dependent signatures into all signals received. Inspired by horseshoe bats in their ability to navigate through complex environments and dense vegetation, dynamic periphery from robotic bat provide a potential frontend solution for speech degradation. To understand how dynamic periphery impacts automatic speech recognition (ASR), two bioinspired feature extractions were studied (Cochleagram and Spikegram) in comparison with the conventional method, Mel-Frequency Cepstral Coefficient (MFCC). Pilot data indicate that bioinspired frontend integration (dynamic sensing, cochlear filtering & spike-based stochastic masking) helps backend classification in presence of babble noise for speech recognition.

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Session III

Bio-medical Research/Health Science
(2:40pm-4:00pm – Gallery Room)

Session Chair

Dr. Jia Chen (陳佳)	Offering Leader, IBM Academy of Technology Leadership

Session Speakers

Prof. Ming-Ming Zhou (周明明)	Chairman, Icahn School of Medicine at Mount Sinai
Dr. Lingyan Shi (石玲燕)	PostDoc Research Associate, Columbia University
Dr. Jia Chen (陳佳)	Offering Leader, IBM Academy of Technology Leadership

Session III: Bio-medical Research/Health Science

Session Chair:

Dr. Jia Chen (陳佳)
Offering Leader, Blockchain for Healthcare & Life Sciences
Innovation & Solution Incubation
IBM Academy of Technology Leadership Team

Biography:

Dr. Jia Chen is an Offering Leader of Blockchain solutions for Healthcare and Life Sciences at IBM's Innovation and Solution Incubation team. She serves on the IBM Academy of Technology Leadership team. She previously led technical strategy at IBM Watson Health Innovation, with a focus on data and AI. Prior to that, Dr. Chen was the global leader of Watson Experience Centers at IBM, responsible for Watson AI client experiences across all Watson group. She held leadership positions for Innovation and client engagement at IBM Corporate Headquarters as well as emerging markets, she led the identification, structuring and execution of first of a kind technology and business initiatives that provide innovative and sustainable differentiation for IBM's clients.

Dr. Chen received her Ph.D. in Physics from Yale University. Her research work was recognized as one of the 'Breakthrough of the Year' by Science magazine in 2001. She was named as one of the top 35 technology innovators under the age of 35 worldwide by MIT's Technology Review in 2005, the Best Researcher of the Year by Small Times magazine in 2006 and one of the top 26 tech women innovators at IBM in 2015. She's an innovation catalyst with over 15 issued patents, 8 book chapters and 50+ journal and conference papers. She serves on the Yale Graduate School Alumni Association Board.

"From Epigenetic Structural Mechanism to Targeted Therapy"

Session Speaker:

Ming-Ming Zhou, PhD (周明明)
Dr. Harold and Golden Lamport Professor and Chairman,
Department of Pharmacological Sciences
Icahn School of Medicine at Mount Sinai
1425 Madison Avenue, Box 1677
New York, NY 10029, USA
Email: ming-ming.zhou@mssm.edu

Biography:

Ming-Ming Zhou, Ph.D. is the Dr. Harold and Golden Lamport Professor and Chairman of the Department of Pharmacological Sciences, and Co-Director of Drug Discovery Institute, and also a Professor of Oncological Sciences at the Icahn School of Medicine at Mount Sinai (New York, NY). His research interest is directed at better understanding of the basic molecular mechanisms of epigenetic control of gene transcription in chromatin. Among his group's major contributions in science are the discovery of the bromodomain as the acetyl-lysine binding domain in gene transcription (*Nature,* 1999), and the tandem PHD finger as a first alternative to the bromodomain for lysine-acetylated histone binding (*Nature*, 2010). His work in bromodomain biology and structure-guided rational design of chemical inhibitors has contributed to the validation of bromodomain proteins as new drug targets for human diseases including cancer and inflammation. Dr. Zhou received his PhD degree in Chemistry from Purdue University and conducted postdoctoral study at Abbott Laboratories (Chicago, IL) before he joined Mount Sinai in 1997. Dr. Zhou has published over 170 research papers, and has trained more than 60 students and postdoctoral fellows. He serves on the Board of Directors at the New York Structural Biology Center, and is a fellow of American Association for the Advancement of Science (2012).

Abstract:

Gene expression of the human genome in response to physiological and environmental stimuli is dictated by chemical modifications of the DNA and the DNA-packing histones, as well as transcription factors that work in concert to direct gene activation or silencing in an ordered fashion. This highly complex biological system that operates with a large number and different combinations of such chemical modifications in chromatin has defied a full investigation of its basic regulatory mechanisms. In this talk, I will present our latest structural and mechanistic study of protein-protein interactions involving master transcription factors and core histones that play an important role in epigenetic control of gene transcription cell proliferation and lineage-specific differentiation. I will discuss the functional implications of our new findings of the basic principles that govern the molecular interactions and regulation in gene expression and strategies for developing new targeted epigenetic therapy for human diseases including cancer and inflammation.

Stimulated Raman Scattering imaging reveals metabolic dynamics in living animals

Session Speaker:

Dr. Lingyan Shi (石玲燕)
Postdoc Research Associate
Department of Chemistry
Columbia University
Ls3372@columbia.edu

Biography:

Dr. Lingyan Shi is a postdoc research associate at Columbia University, her pioneering work applies novel optical techniques for neuroscience, cancer research, and metabolism, including recent discovery of the "Golden Window" for deep brain imaging, and a breakthrough platform for imaging metabolic activities. She won the prestigious Blavatnik Award for Regional Young Scientists in 2018. She is the chief editor of a book titled "Deep imaging in tissues and biomedical materials". She has published more than 28 peer reviewed journal papers and has 6 patents currently pending.

Abstract:

Understanding the dynamics of metabolism in a multicellular organism is essential to unraveling the mechanistic basis of many biological processes. It is the synthesis, transformation and degradation of biomolecules (the definition of metabolism) that carry out the genetic blueprint, which cannot be imaged in vivo by using traditional methods. In the present work, we developed a new method that combines D_2O probing and Stimulated Raman Scattering microscopy (**DO-SRS**) to visualize metabolic dynamics in live animals. The enzymatic incorporation of D_2O-derived deuterium (D) into biomolecules will generate carbon-deuterium (C-D) bonds in macromolecules. Within the broad vibrational spectra of C-D bonds, we discover lipid-, protein-, and DNA-specific Raman shifts and develop spectral unmixing methods to obtain C-D signals with macromolecular selectivity. We obtained new biological insights in several studies such as the spatial dependence of lipogenic activities of sebaceous glands, specific myelination timing of the developing mouse brain, differential protein and lipid metabolism in germline development of C. elegans as well as its aging process, the spatial constrain for the distribution of newly synthesized yolk proteins in aged C. elegans, the prevalence of protein biosynthesis and the lack of lipogenesis in zebrafish embryos, and intratumoral metabolic heterogeneity. In summary, we demonstrated that our current DO-SRS method is better than other deuterium-labeled carbon substrate in monitoring and imaging metabolic activities. This technique can track specifically de novo lipogenesis, image in vivo protein biosynthesis without tissue bias, and can simultaneously image spatial temporal dynamics of lipid and protein.

Transform the Era of Health with AI & Blockchain

Session Speaker:

Dr. Jia Chen (陈佳)
Offering Leader, Blockchain for Healthcare & Life Sciences
Innovation & Solution Incubation
IBM Academy of Technology Leadership Team

Biography:

Dr. Jia Chen is an Offering Leader of Blockchain solutions for Healthcare and Life Sciences at IBM's Innovation and Solution Incubation team. She serves on the IBM Academy of Technology Leadership team. She previously led technical strategy at IBM Watson Health Innovation, with a focus on data and AI. Prior to that, Dr. Chen was the global leader of Watson Experience Centers at IBM, responsible for Watson AI client experiences across all Watson group. She held leadership positions for Innovation and client engagement at IBM Corporate Headquarters as well as emerging markets, she led the identification, structuring and execution of first of a kind technology and business initiatives that provide innovative and sustainable differentiation for IBM's clients.

Dr. Chen received her Ph.D. in Physics from Yale University. Her research work was recognized as one of the 'Breakthrough of the Year' by Science magazine in 2001. She was named as one of the top 35 technology innovators under the age of 35 worldwide by MIT's Technology Review in 2005, the Best Researcher of the Year by Small Times magazine in 2006 and one of the top 26 tech women innovators at IBM in 2015. She's an innovation catalyst with over 15 issued patents, 8 book chapters and 50+ journal and conference papers. She serves on the Yale Graduate School Alumni Association Board.

Abstract:

The healthcare industry is transforming at a velocity that is catching many organizations unprepared. The industry aspires to move toward higher value – delivering better quality care and outcomes at more affordable cost. These changes require many foundational shifts - transparency – into both the costs and the effectiveness of care delivered. At the same time, the amount and complexity of available medical, genomic and life sciences and real world data has been growing at an unprecedented rate. The industry is on the cusp of new learnings, thanks to the vast quantities of health data, along with new AI systems to help make sense of all of it. We'll discuss how to leverage AI and Blockchain to empower the shift from volume to value, to simplify processes and improve efficiencies, to glean the right information at the point of care, to improve quality and reduce cost.

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Session IV

AI and Fintech
(4:10pm-5:30pm – Boardroom East)

Session Chair

Dr. Ching-Yung Lin (林清詠)	CEO, Graphen, Inc., Adjunct Prof. at Columbia University

Session Speakers

Dr. Ching-Yung Lin (林清詠)	CEO, Graphen, Inc., Adjunct Prof. at Columbia University
Dr. Jie Lu (呂潔)	CTO, Graphen, Inc.
Dr. Hui Shao (邵暉)	Director, Bank of America

Session IV: AI and Fintech

Session Chair:

Dr. Ching-Yung Lin (林清詠)
CEO, Graphen, Inc.
500 5th Ave., Fl. 46, New York, NY 10110
cylin@graphen.ai

Biography:

Dr. Ching-Yung Lin is the CEO of Graphen, Inc., a startup focusing on developing next-generation Artificial Intelligence technologies, especially for the Financial Services industry solutions. Before June 2017, he was the IBM Chief Scientist (for the area of Graph Computing) and led to create IBM's first AI products in the Financial Industry. He led the Network Science and Machine Intelligence department at IBM T. J. Watson Research Center. He has been an Adjunct Professor at Columbia University since 2005, and was an Affiliate Professor at the University of Washington from 2003 to 2009 and an Adjunct Professor at NYU in 2014. Headquartered in New York, Graphen, Inc. currently has branches and subsidiaries in Taipei, Hong Kong, Beijing, Singapore, and Austin.

Dr. Lin was named an IEEE Fellow in Nov 2011, the first in the area of Network Science. Inspired by human's brain structure being a network of billions to trillions of nodes and edges, Dr. Lin's research interest has been on realizing Artificial Intelligence of full brain functioning via fundamental R&D breakthrough of graph-based technologies. He is an author of 180 publications and 38 awarded patents, with 9000+ citations. From 2011 to 2016, he also led a large US government's cognitive security project which aims at human behavior understanding and pre-crime prediction. Furthermore, he led a team of 40+ researchers from Columbia University, CMU, Northeastern Univ., Northwestern Univ., UC Berkeley, Stanford Research Institute, Rutgers Univ., Univ. of Minnesota, and NMU in the then largest US social media analysis research project from 2012 to 2015.

Dr. Lin was invited as a keynote or plenary speaker in 30+ conferences, including the International Conference on Cybersecurity hosted by FBI in 2016 and the Expo 2.0 in New York Javits Convention Center in 2009. In 2015, he was invited by the President of the American Medical Association as a panelist, together with the White House Chief Data Scientist, to discuss the impact of Big Data in Healthcare. In 2003, he initiated and led 111 researchers in 23 worldwide institutes to make the first-ever large-scale video annotation task to pave the foundation of Supervised Machine Learning of Visual Recognition. His "Big Data Analytics" course in Columbia University has created more than 400 big data application projects and open sources and is the Top 1 search result of Baidu search on Big Data Analytics. His work won 7 best paper awards, shown in 100+ press releases, and was featured 4 times by the BusinessWeek magazine, including being the Top Story of the Week in May 2009. In 2010, IBM Exploratory Research Career Review selected Dr. Lin as one of the five researchers "most likely to have the greatest scientific impact for IBM and the world."

Emerging AI applications for the Financial Industry

Session Speaker:

Dr. Ching-Yung Lin (林清詠)
CEO, Graphen, Inc.
500 5th Ave., Fl. 46, New York, NY 10110
cylin@graphen.ai

Biography:

Dr. Ching-Yung Lin is the CEO of Graphen, Inc., a startup focusing on developing next-generation Artificial Intelligence technologies, especially for the Financial Services industry solutions. Before June 2017, he was the IBM Chief Scientist (for the area of Graph Computing) and led to create IBM's first AI products in the Financial Industry. He led the Network Science and Machine Intelligence department at IBM T. J. Watson Research Center. He has been an Adjunct Professor at Columbia University since 2005, and was an Affiliate Professor at the University of Washington from 2003 to 2009 and an Adjunct Professor at NYU in 2014. Headquartered in New York, Graphen, Inc. currently has branches and subsidiaries in Taipei, Hong Kong, Beijing, Singapore, and Austin.

Abstract:

Artificial Intelligence (AI) is truly changing the landscape for the financial industry through Promoting automation, Improving analytics and decision-making, and Creating new business models. On the new levels of automation – companies will change the way they perform their work that will increase productivity and efficiency. Companies can have better decision-making and analytics - enable companies to better understand the data they have that can drive profitability. And, AI can potentially shift company operations to new business models – new growth opportunities will emerge with better designed products and more innovative ways to engage customers.

For instance, in Banking, AI will enable: automatic Risk Analysis, better Customer Service interaction, more thorough Compliance solutions, and assisting New products design. In the Investment and Wealth Management domain, AI can improve such as, automatic information analysis for securities, Personalized robo-advisors, Automation of back-office processes such as trade reconciliations and confirmations, etc. For the insurance space, AI can do something like: Fraud detection, Claims forecasting, Insurance broker monitoring, etc. In this talk, I will give an overview of potential AI Fintech applications. We are just seeing the beginning of the wave of AI impact to the financial industry transformation.

Adopting AI Technologies for Anti-money Laundering

Session Speaker:

Dr. Jie Lu (呂潔)
CTO, Graphen, Inc.
500 5th Ave., Fl. 46, New York, NY 10110

Biography:

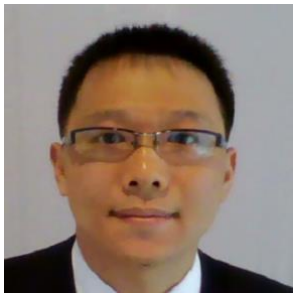
Dr. Jie Lu is the Chief Technology Officer of Graphen, Inc. Currently she is leading the effort of creating the next-generation Artificial Intelligence and Big Data Analytics platform as well as FinTech solutions on top of this platform. Prior to co-founding Graphen, Inc., Dr. Lu worked at IBM T.J. Watson Research Center as a research scientist for 10 years, leading multiple internal and external technology and software system research and development projects, covering areas such as contextual information retrieval and recommendation, interactive visual analytics for business intelligence, social media analysis for strategic communications, and using graph analytics and machine learning techniques on billion-level data to detect anomalies for financial applications. Recently, Dr. Lu has been leading the development of Anti-Money Laundering, Non-Performing Loans, and Cybersecurity Monitoring systems for top bank clients. Dr. Lu received her Ph.D. from Carnegie Mellon University in 2007, M.S. from Yale University, and B.S. from Tsinghua University.

Abstract:

Money-laundering is a global issue that is fundamental to the Financial Industry. In this talk I will describe challenges faced by financial institutions for AML, problems with existing AML systems, and how AI technologies can help to address these challenges and problems.

An Introduction of Counterparty Credit Risk Modeling

Session Speaker:



Dr. Hui Shao (邵暉)
Director, Counterparty Credit Risk Analytics,
Bank of America Merrill Lynch

Biography:

Dr. Hui Shao is a Director in the Counterparty Credit Risk Analytics of Bank of America Merrill Lynch. The team is mainly responsible for the development of models utilized in counterparty risk management, regulatory capital calculation, stressed testings and fair value adjustments. Previously, Hui worked as a Senior Manager in the Quantitative Advisory Service in Ernst and Young and quantitative analyst in Moody's Investors Service. Hui holds a Bachelor's Degree in Physics from Peking University and a Ph.D. in Electrical Engineering from Columbia University.

Abstract:

This talk gives a brief introduction of Counterparty Credit Risk (CCR) models. It goes over the major components of CCR models including risk factor selection and simulation, trade pricing and portfolio aggregation. Each section covers the model consideration such as joint simulation of risk factors, analytical and American Monte Carlo pricers. Recent development in forward Initial Margin (IM) modeling will also be summarized.

Chinese Institute of Engineers, USA/GNYC
2018 Annual Convention

Sheraton Hotel, Flushing, New York
Saturday, October 27, 2018

Session V

AI and Machine Learning Applications
(4:10pm-5:30pm – Boardroom West)

Session Chair

Prof. Yingli Tian (田英利)	Dept. of Electrical Engineering, CCNY, Fellow of IEEE

Session Speakers

Prof. Yingli Tian (田英利)	Dept. of Electrical Engineering, CCNY, Fellow of IEEE
Dr. Xiaoping Tang (唐小平)	Google
Prof. Rex Wong (王希亮)	Dept. of Engineering and Technology, Vaughn College

Session V: AI and Machine Learning Applications

Session Chair:

Dr. Yingli Tian (田英利)
Professor, IEEE Fellow
Department of Electrical Engineering
The City College of New York
New York, NY 10031
ytian@ccny.cuny.edu

Biography:

Dr. Yingli Tian is a professor in the Department of Electrical Engineering at the City College of New York. She received her PhD from the Department of Electronic Engineering at the Chinese University of Hong Kong in 1996 and her BS and MS from TianJin University, China in 1987 and 1990. She is experienced in computer vision topics ranging from object recognition, scene understanding, to human behavior analysis, facial expression recognition, gesture recognition, and assistive technology. After she worked in National Laboratory of Pattern Recognition at the Chinese Academy of Sciences, Beijing, China, Dr. Tian joined the Robotics Institute in Carnegie Mellon University as a postdoctoral fellow. She focused on automatic facial expression analysis. From 2001 to 2008, Dr. Tian was a research staff member at IBM T. J. Watson Research Center, Hawthorn, New York. She focused on video surveillance and activity analysis. She was one of the inventors of the IBM Smart Surveillance Solutions (SSS) and was leading the video analytics team. She received the IBM Invention Achievement Awards every year from 2002 to 2007 and the IBM Outstanding Innovation Achievement Award in 2007. She is an Associate Editor of Computer Vision and Image Understanding and Journal of Visual Communication and Image Representation. Dr. Tian has published more than 200 papers in journals and conferences (with more than 14,000 citations based on Google Scholar) and holds 29 issued patents. She is a Fellow of IEEE.

Can Computer Vision Help the Blind to See?

Session Speaker:

Dr. Yingli Tian (田英利)
Professor, IEEE Fellow
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ytian@ccny.cuny.edu

Biography:

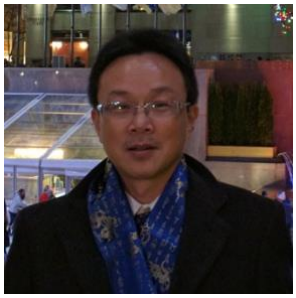
Dr. Yingli Tian is a professor in the Department of Electrical Engineering at the City College of New York. She received her PhD from the Department of Electronic Engineering at the Chinese University of Hong Kong in 1996 and her BS and MS from TianJin University, China in 1987 and 1990. She is experienced in computer vision topics ranging from object recognition, scene understanding, to human behavior analysis, facial expression recognition, gesture recognition, and assistive technology. After she worked in National Laboratory of Pattern Recognition at the Chinese Academy of Sciences, Beijing, China, Dr. Tian joined the Robotics Institute in Carnegie Mellon University as a postdoctoral fellow. She focused on automatic facial expression analysis. From 2001 to 2008, Dr. Tian was a research staff member at IBM T. J. Watson Research Center, Hawthorn, New York. She focused on video surveillance and activity analysis. She was one of the inventors of the IBM Smart Surveillance Solutions (SSS) and was leading the video analytics team. She received the IBM Invention Achievement Awards every year from 2002 to 2007 and the IBM Outstanding Innovation Achievement Award in 2007. She is an Associate Editor of Computer Vision and Image Understanding and Journal of Visual Communication and Image Representation. Dr. Tian has published more than 200 papers in journals and conferences (with more than 14,000 citations based on Google Scholar) and holds 29 issued patents. She is a Fellow of IEEE.

Abstract:

In this talk, I will introduce our research of applying computer vision technologies to assist visually impaired or blind persons. In particular, this talk will focus on scene text detection extraction and indoor navigation. Text information widely exists in natural scene and serves as a significant indicator for many vision-based applications. Automatic extracting text information from natural scene images is still a challenging task due to complex background outliers and variations of text patterns. We have developed a prototype navigation system in Android platform by combining computer vision and robotics SLAM technologies to assist blind users in navigating across multiple floors.

How Machine Learning Is Used in Advertising

Session Speaker:



Dr Xiaoping Tang (唐小平)
Ads Department
Google
New York, NY 10011
xiaopingt@gmail.com

Biography:

Dr. Xiaoping Tang obtained his PhD in Computer Science Department in University of Texas at Austin. Since graduation, he has worked in a few areas in a few companies. He joined a startup company to work VLSI design automation, later acquired by Cadence. In 2004, he joined IBM T.J. Watson Research Center as research staff member, working on VLSI design automation. In 2011, he joined Google New York, where he worked on Google Search and later on Google Advertising.

Abstract:

Machine Learning and Deep Learning have a wide range of applications in many areas. In this talk, I will talk about how Machine Learning is used to improve advertising quality. The topics may include:

- Creative rotation
- Performance optimization
- Category Blocking
- View rate adjustment
- Reserve price optimization
- Callout filtering
- Feedback enhancement
- Etc.

I will cover some pros and cons of various approaches.

The AI-based Robotic Sensor Network in Senior Homecare of the Aging Society

Session Speaker:

Dr. Rex Wong (王希亮)
Associate Professor
Department of Engineering & Technology
Vaughn College of Aeronautics & Technology
East Elmhurst, NY 11369
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Biography:
Dr. Wong is an Assistant Professor in the Department of Engineering & Technology at Vaughn College of Aeronautics & Technology, where he joined in 2010 as an Assistant Professor. He obtained her Ph.D. degree in Electrical Engineering from City University of New York, with concentration in robotics and automation. Before taking academic jobs, he worked for space and defense industry for 20 years involving in many avionic projects of control and communication systems, from Hughes Aircraft to Grumman, as well as many small subcontractors. His research interests range from robotic and sensor systems integration, algorithm in mobile robots and autonomous vehicles, service robotics, to multi-robot communications, and wearable electronics for ex-skeleton. He has also published extensively in the field of robotics and automation. He is currently a member of the editorial board of IEEE Robotics and Automation Magazine. Dr. Wong is a Senior Member of the IEEE.

Abstract:
In the wake of aging society, the impact has caught the attention of most governments world-wide and caused many governments to undertake action regarding to this issue. In the realm of senior long term care, this impact becomes more obvious. Due to the diminishing growth rate of the national population in most developed countries, it is foreseeable that the capable labor force within a society is declining and such that the man power plunged into medical home care is shrinking as well. Therefore, relying solely on the human labor for senior home care is not practical and will be the thing of the past. Even importing foreign health care personnel, due to the diversity of cultural background and political reasons or the local immigrant law or visa policy, they may not be suitable for certain society in terms of quality and cultural difference and conflict. Due to the shortage of man power in this field, the cost of senior home care will be increasingly unaffordable if there is no other way. In view of this situation, people start thinking about the possibility of replacing human with machine, especially in the era of trendy robotics and artificial intelligence. However, the machine, no matter how smart it would be, is not supposed to replace human's role in lead position. In many aspects, the machine or robots are only the force-multiplier which we can leverage to enhance our capability to provide the robust solution, and we should never let it take the lead to tell us what to do or let them gain autonomy in sense of self-determination or self-consciousness. The new model of the senior home care must be the combination of human and machine, and the two must coordinate to provide a feasible working protocol in term of safety, efficiency, reliability, and cost-effectiveness. We propose a conceptual multi-faceted robotic-based infrastructure of senior home care which includes the static sensor network, supplemented by dynamic robotic patrollers, as well as human in the loop at remote site where the AI-based analysis and data processing can be carried out, thus to form a Omni- faucet monitoring and alert system to help alleviate the burden of aging society in term of long term senior care.

Session VI: Poster Presentation

Session Co-Chair:

Dr. Yuying Q. Gosser (仇玉英)
Research Assistant Professor
Department of Chemistry
Former Director of Student Research and Scholarship
Grove School of Engineering
The City College of the City University of New York
160 Convent Avenue, New York, NY 10031
ygosser@ccny.cuny.edu, yygosser@gmail.com

Biography:

Dr. Yuying Q. Gosser graduated from University of Science and Technology of China with a BS in Polymer Physics. After obtaining a Master's of Chemical Engineering from the Research Institute of Petroleum Processing of China she came to U.S and earned a PhD in Physical Organic Chemistry and NMR from Brown University. She did postdoctoral research on multi-dimensional NMR spectroscopy at Yale University and on NMR structural biology at Rockefeller University. Prior joining the City College of CUNY, she worked in Memorial Sloan-Kettering Cancer Center (MSKCC) to study protein and RNA structures and their interaction with potential drug molecules.

At the City College of CUNY, in the Science Division, supported by NSF and HHMI Science education fund, Dr. Yuying Q. Gosser established the Pathways Bioinformatics Center and the Gateway Laboratory, and directed undergraduate research training in Structural Biology and Bioinformatics. She joined national Genomics Education Partnership (http://gep.wustl.edu/) and developed research-based Bioinformatics course for undergraduate education. In the School of Engineering, in close collaboration with faculty, she developed a research-oriented engineering scholarship program and successfully directed many aspired engineering students to nation-wide research institutions, such as NIST, IBM, JPL, etc. She also served as the Executive Editor of the Journal of Student Research (JSR) since its inception in 2008 (www.ccnyosrs.org).
Her dedication to undergraduate research was recognized by 2015 City College President's S.T.A.R. award, and she was invited to serve on the Biochemitry and Structural Biology Review Panel for National Science Foundation Graduate Research Fellowship Program in 2015 and 2016.

Session VI: Poster Presentation

Session Co-Chair:

Dr. Dantong Yu (于丹彤)
Associate Professor
Martin Tuchman School of Management,
New Jersey Institute of Technology,
Newark, NJ 07102-1982, USA
dantong.yu@njit.edu

Biography:

Dantong Yu is an Associate Professor in Martin Tuchman School of Management, and Graduate Program Director of Ph.D. in Business Data Science. He received a BS degree in computer science from Peking University and a Ph.D. degree in Computer Science from University at Buffalo. He joined Martin Tuchman School of Management at New Jersey Institute of Technology in 2016. He also holds guest appointment in the Department of Computer Science and Mathematics at BNL. He founded and led the Computer Science Group in BNL between 2009 and 2016. He developed the data management tool that thousands of physicists use. His research interests include data mining, machine learning, data network and storage. He has published 70 papers in leading technical journals and conferences. He has served on the review panels for NSF, DOE Early Career Investigator and DOE SBIR/STTR. He is the PC member of KDD, ICDM, ICDE, ICCCN, HiPC, and ICPADS.

Application of GIS Technology in Ecology of Lyme Disease Ticks

Chong (John) Di (狄翀), chongdi0505@gmail.com, Department of Geography, Hunter College
Prof. Shipeng Sun, shipeng.sun@hunter.cuny.edu; Prof. Allan Frei, afrei@hunter.cuny.edu;
Prof. Weigang Qiu, weigang@genectr.hunter.cuny.edu

Chong (John) Di (狄翀):

I am a student from Geoinformatics Master's program at Hunter College. A two-year study in this program awakens my interest in this field that has a variety of sub-tracks including, for instance, spatial analysis, geo-webcoding, geovisualization, and map design. With the growing ubiquity of information sciences, I also have opportunity to try out some intriguing modeling techniques including neurnetworks, machine learning, and big data analytics, with which I was able to find patterns underlying data. In the long term, I am interested in developing a career not only in GIS but also in data analytical techniques.

Abstract:

The deer tick (*Ixodes scapularis* or *I. scapularis*), also known as black-legged tick, is the primary vector that transmits Lyme Disease (LD) in Northeastern United States. To contain the geographic expansion of Lyme disease ticks across the US in recent decades, ecological studies have been made to understand the biotic and abiotic environmental factors affecting tick population growth. Most ecological studies of tick density, however, are at macro-geographic scales such as county, state, and regional levels. We observed in preliminary surveys that tick abundance varies across small local areas. The primary objective of this project is to identify environmental factors that impact deer tick questing activity at micro-geographic scale. From 2017-2018, we collected ticks at four locations in New York City suburbs during nymph and adult questing seasons. Tick sampling was conducted within 5m × 5m sites and field data including surface temperature and relative humidity were measured. Spatial analysis and digital image processing techniques were employed to acquire DEM (Digital Elevation Model), solar radiation, and NDVI (Normalized Difference Vegetation Index) from high spatial resolution imagery including LIDAR (Light Detection and Ranging) and NAIP (National Agriculture Imagery Program). Results from Principle Component Analysis (PCA) and regression analysis revealed that tick abundance at micro-geographic scale is not significantly associated with surface temperature and relative humidity, but significantly correlated with NDVI and presence of reservoir host habitat. However, larger sample sizes, which allow more sophisticated analysis, are required to further investigate how environmental variables impact adult tick questing activity at micro-geographic levels.

Hermes: A Comfort-Centered and Ultra-lightweight Soft Knee Exoskeleton for Mobility Augmentation in Communities

Shuangyue Yu[1] / syu003@citymail.cuny.edu Mentor: Hao Su[1] / hao.su@ccny.cuny.edu
[1]Biomechatronics and Intelligent Robotics Lab, Department of Mechanical Engineering,
City University of New York, City College, New York, NY, 10031, USA

Corresponding Author Profile:

As a predoctoral student, I am studying soft lower-limb exoskeleton and soft sensors in the Biomechatronics and Intelligent Robotics Lab, department of mechanical engineering, the City University of New York. My expertise is in soft wearable robotics and smart textile sensors. I have 5 years' experience on human-in-the-loop robotic design, wireless human motion capture sensors and have successfully developed inertial measurement unit based wireless wearable systems, wearable soft fabric electromyography sensors, and soft pressure insole sensors. Within the first year Ph.D. training in the biomechatronics lab, I have participated in the design of an ultra-lightweight and versatile soft exoskeleton, soft fabric EMG sensors and soft robotic gloves for mobility augmentation, rehabilitation, and assistance for SCI and stroke patients. Based on these projects, I have published 6 papers as author or co-author. The design of our knee exoskeleton robot allowed us to win the Mobility Unlimited Challenge Discovery Award.

Abstract:

We are developing a comfort-centered soft knee exoskeleton for mobility augmentation in communities and supporting independent living across the continuum of rehabilitation. Our soft knee exoskeleton now offers the unique technical advancement of loco-motional walking by gait cycle detection and assistive torque generation. The objective of this study was to develop assistive exoskeleton to help stroke, SCI and knee osteoarthritis patients who have weak hamstrings and/or quadriceps walking through assisting knee joint both flexion and extension.

Wearable exoskeletons are typically composed of actuators, transmissions. The traditional design of the knee exoskeleton always has heavy and bulky actuation, the transmission design limits the natural movement to occur joint misalignment issue, and its wearable structure exists sizing and fitting problem for different subjects. We are exploring new approaches to design softer, smarter, safer and more comfort assistive knee exoskeleton devices with the innovations of high-torque density motors. It significantly reduces the weight of exoskeletons with low restrictions. Our design presents design principles for comfort-centered wearable robots and their application in a lightweight and backdrivable knee exoskeleton.

The device can generate above 20 Nm peak torque for both flexion and extension movement. The entire mechanical actuation and transmission system is a combination of a custom designed high torque density motor, small gear ratio (8:1) reducer, timing belt and rolling knee joint. By using 3D scan and 3D print technology, the low profile custom designed wearable parts become affordable, and can be worn under-garment. Besides, the exoskeleton also incorporates wearable inertial measurement units (IMU) which can detect the wearer's gait cycle. The torque control and gait cycle detection by IMU sensor were also implemented to generate torque trajectory and assist patients walking.

In addition, we are developing a new generation of cable-driven knee exoskeleton, back exoskeleton and ankle exoskeleton in the form of both tethered and portable version. The development and research of the above projects are funded by NSF, the City College of New York and Toyota Mobility Foundation.

CNNs-Based Human Pose Estimation with Pose Structure Prior

Yucheng Chen (陈昱成), Ying-Li Tian
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Ytian @ccny.cuny.edu
Department of Electrical engineering
The City College of New York, CUNY
160 Convent Avenue, ST-512, NYC, NY, 10031

Biography:

Yucheng Chen is a Ph.D. candidate in Northwestern Polytechnical University, China. Now, he has joined Media Lab of the City College of New York/CUNY as a visiting student, supervised by Professor YingLi Tian. He earned his BS degree in Information Countermeasure Techniques and MS degree in Electronics and Communication Engineering from Xidian University, China.

He has been involved in several projects as the main project engineer during his graduate study, e.g., FPGA-based Multi-channel Video Signal Processing Chip Test System, FPGA-based Context-based Adaptive Lossless Image Codec (CALIC) System, Kinect-based Physical Fitness Test System. Now his current research focuses on Human Pose Estimation, Image Segmentation, Computer Vision and Deep Learning.

Abstract:

The task of image-based human pose estimation (HPE) aims to obtain human posture from given images which can be applied for many applications such as action recognition, human computer interaction, video surveillance, etc.

With deep learning shows outstanding performance on many computer version tasks (classification task, detection task, object localization task etc.), the most recent HPE algorithms have applied convolutional neural networks (CNNs) and demonstrated improvements on standard benchmarks (MPII, COCO etc.). However, the performance on standard benchmarks has become saturated, since simply increase network complexity and adopt multi-scale feature maps cannot handle very well on some challenges like occluded body parts, nearby persons and clutter backgrounds.

In the poster, we will show some recent work sum-up on how to refine occluded body joints from the original results. This paragraph didn't finish yet.

Shape Robust Scene Text Detection

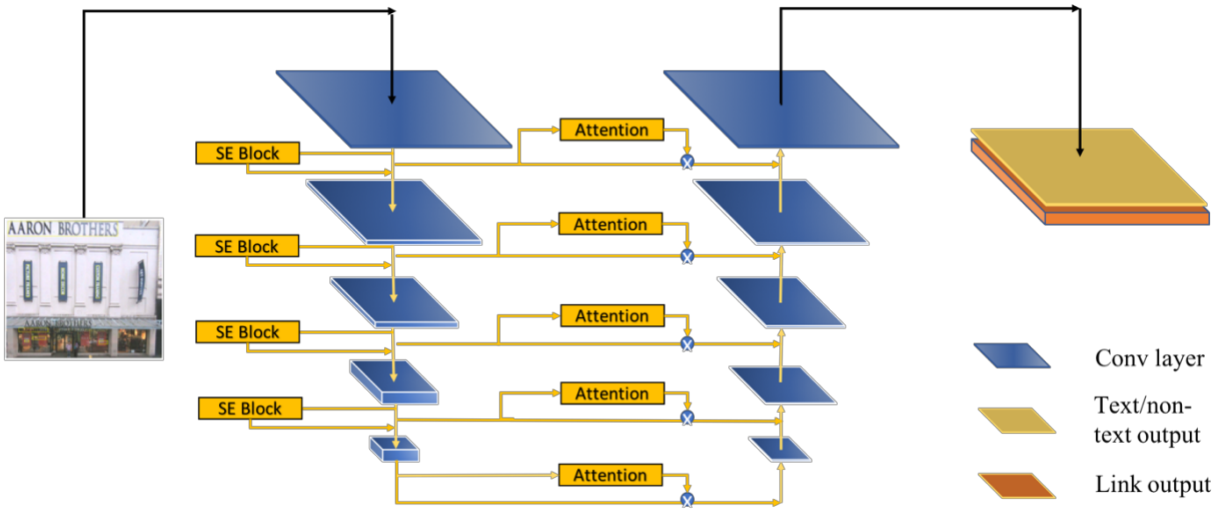
Haiyan Wang whybupt123@outlook.com
Yingli Tian ytian@ccny.cuny.edu

Haiyan Wang:

Currently, I am a second year Ph.D student in Media Lab of CCNY and under professor Tian's advisor. My research topic majors in computer vision which is related to object detection, text detection.

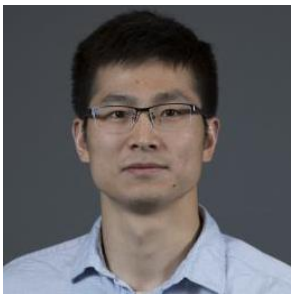
Abstract:

Most existing text detection methods are based on the one-shot or two stages object detection methods. Both of these methods highly rely on the categories classification and bounding boxes regression steps. These steps could help to get the accurate text bounding boxes detection results. However, we aim to solve the text detection problem from an instance-aware segmentation perspective, in which text bounding boxes are extracted directly from the segmentation results without location regression.
Meanwhile, because the text instance scales vary from extremely small to large text boxes, the task requires rich representations that span levels from low to high. Although skip connection and feature pyramid networks are proposed to combine layers and blocks recent years, is still fused by simple operations and not sufficient enough to fuse information across layers. So we introduce the SE block and attention methods to deal with the problem through combine the text instance segmentation and deep layer aggregation. Experiment shows that, our method can achieve comparable performance on ICDAR2013, ICDAR2015 and ICDAR2017 datasets.



Deep Semantic 3D Visual Metric Reconstruction Using Wall-climbing Robot

Liang Yang, Jizhong Xiao
Lyang1@ccny.cuny.edu, jxiao@ccny.cuny.edu
Department of Electrical Engineering,
The City College of the City University of New York,
160 Convent Avenue, New York, NY 10031



Biography:

Liang Yang is a Ph.D candidate at Robotics LAB, EE department, The City College of New York(CCNY). His research interests including unmanned system navigation, machine vision, SLAM, and 3D deep learning. He has participated two research internships so far, one is IBM CRL summer research intern 2017, and another is Microsoft Research & AI Ph.D. research intern 2018. For IBM CRL summer research intern, he was leading a team on 'Deep DJ' project and won the "Best IBM CRL Intern Research Project Award ". For Microsoft Research & AI intern, he was working toward solving tracking problem of Hololens and got invitation for full-time research job for 2019. He is now a research assistant at the Robotics Lab of CCNY, and his research topics are visual SLAM and 3D semantic understanding, sensor fusion, and deep inspection for infrastructure using visual sensor. He is now joining University Transportation Center on Inspecting and Preserving Infrastructure through Robotic Exploration (INSPIRE Center) project and won 'Third Prize for Annual Research Poster 2018'. He has won IEEE ICMA 2014 'Best Student Paper Award' and ICIRA 2015 'Best Student Paper Finalist Award'.

Abstract:

This poster presents a novel inspection method using a deep neural network called InspectionNet to detects the crack and spalling defects on concrete structures performed by a novel wall-climbing robot. First, we create a pixel-level semantic dataset which includes 820 labeled images. The training on the dataset for InspectionNet is performed with 12,000 iterations for each defect type. Second, we propose an inspection method to obtain 3D metric measurement by using an RGB-D camera-based visual simultaneous localization and mapping system (SLAM), which is able to generate pose coupled key-frames with depth information. Therefore, the semantic inspection results can be registered in the concrete structure 3D model, which provides metric information for condition assessment and monitoring. Third, we present our new generation wall-climbing robot to perform the inspection task on both horizontal and vertical surfaces. Our field experiments demonstrate that our wall-climbing robot and inspection system can perform robust 3D metric inspection even in a low illuminated environment.

Early Detection of Triple Negative Breast Cancer by SHG Imaging and Resonance Raman Spectroscopy

Ethan Bendau, ebendau@gmail.com, Department of Biomedical Engineering, Columbia University, New York, NY 10027
Dr. Lingyan Shi, ls3372@columbia.edu
Department of Chemistry, Columbia University, New York, NY 10027

Biography:

Ethan Bendau is a Ph.D. student of biomedical engineering and Blavatnik Presidential Fellow at Columbia University. This research was conducted while he was an undergraduate physics student at The City College of New York, where he graduated with research honors for his work on this project. He acted as president of the CCNY Physics Club and was active in community outreach. He organized science demonstrations for local middle and high school students, as well as numerous academic talks for undergraduate students in the physics department. His current research at Columbia University is with Prof. Elisa Konofagou on neuromodulation using focused ultrasound.

Abstract:

Triple-negative breast cancer (TNBC) is characterized as estrogen receptor negative, progesterone receptor negative, and lacking overexpression of human epidermal growth factor receptor 2. TNBC has poor prognosis relative to other breast cancer subtypes and cannot be treated effectively by hormone-targeted therapies. TNBC has been shown to respond well to chemotherapy, however, and thus early detection is crucial for improved patient outcomes. Current imaging modalities are limited in their capacity to accurately detect cancerous tumors and the standard of diagnosis is physical tissue biopsy followed by histopathology. This is both invasive and time-consuming. This study used multiphoton fluorescence microscopy (MPM) and resonance Raman spectroscopy (RRS) in conjunction with magnetic resonance (MR) spectroscopy as a non-invasive and label-free means of cancer diagnosis by detecting fluorescence, spectral, and magnetic resonance signals that are associated with different tissue structures and metabolic activity. We found that the collagen morphology varied distinctly between the two TNBC and non-TNBC tumors observed, with TNBC tumors exhibiting the straighter, more organized collagen fibers of highly aggressive tumors. In addition, resonance Raman spectra indicate distinct lipid and collagen content between the tumors. Our method demonstrates the potential of using a combination of MPM and RRS imaging modalities to provide fast, label-free, and non-invasive diagnosis of TNBC.

PermDNN: Efficient Compressed Deep Neural Network Architecture with Permuted Diagonal Matrices

Chunhua Deng (Rutgers University, chunhua.deng@rutgers.edu)
Siyu Liao (Rutgers University, siyu.liao@rutgers.edu)
Yi Xie (Rutgers University, yi.xie@rutgers.edu)
Keshab K. Parhi (University of Minnesota, Twin Cities, parhi@umn.edu)
Xuehai Qian (University of Southern California, xuehai.qian@usc.edu)
Yuan Bo (Rutgers University, bo.yuan@soe.rutgers.edu)

Corresponding Author Profile :

Chunhua Deng is currently a Ph.D. candidate in the Department of Electrical and Computer Engineering at Rutgers University – New Brunswick. He received his Bachelor degree from Department of Electrical Engineering at China University of Petroleum in 2005, and Master degree from Department of Electrical Engineering at Beijing Institute of Technology in 2007. He then worked at ZTE Corporation between 2007 and 2017 as a Digital IC Senior System Design Engineer. He studied as a PhD candidate at City College, City University of New York in 2017. His research interest includes compression of deep neural network, energy-efficient and high-performance implementations of deep learning and artificial intelligence systems, 5G wireless communication system. His work has been published in top conference (MICRO). He has been granted 10 Chinese and international patents about low-power and low-cost digital IC architecture design.

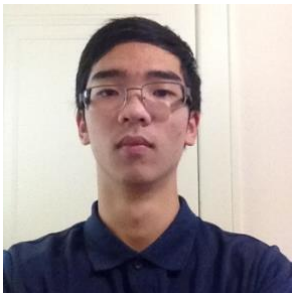
Abstract :

Deep neural network (DNN) has emerged as the most important and popular artificial intelligent (AI) technique. The growth of model size poses a key energy efficiency challenge for the underlying computing platform. Thus, model compression becomes a crucial problem. However, the current approaches are limited by various drawbacks. Specifically, network sparsification approach suffers from irregularity, heuristic nature and large indexing overhead. On the other hand, the recent structured matrix-based approach (i.e., CIRCNN) is limited by the relatively complex arithmetic computation (i.e., FFT), less flexible compression ratio, and its inability to fully utilize input sparsity. To address these drawbacks, this paper proposes PERMDNN, a novel approach to generate and execute hardware-friendly structured sparse DNN models using permuted diagonal matrices. Compared with unstructured sparsification approach, PERMDNN eliminates the drawbacks of indexing overhead, nonheuristic compression effects and time-consuming retraining. Compared with circulant structure-imposing approach, PERMDNN enjoys the benefits of higher reduction in computational complexity, flexible compression ratio, simple arithmetic computation and full utilization of input sparsity. We propose PERMDNN architecture, a multi-processing element (PE) fullyconnected (FC) layer-targeted computing engine. The entire architecture is highly scalable and flexible, and hence it can support the needs of different applications with different model configurations. We implement a 32-PE design using CMOS 28nm technology. Compared with EIE, PERMDNN achieves 3.3× ~ 4.8× higher throughout, 5.9× ~ 8.5× better area efficiency and 2.8× ~ 4.0× better energy efficiency on different workloads. Compared with CIRCNN, PERMDNN achieves 11.51× higher throughput and 3.89× better energy efficiency.

Chinese Institute of Engineers, Greater New York Chapter
2018 High School Scholarship Award

Alan Chang (張逸文) is a senior at Byram Hills High School. His academic interests lie in the STEM fields. Alan is always curious to learn more about complex worldly phenomena ranging from complicated chemical reactions to fascinating biological mechanisms. He spent the past summer at Yale University researching the characterization of cell populations involved in immune escape via innovative AI analysis of single-cell RNA sequencing data obtained from a CRISPR-Cas9 cancer screen. Alan also pursues his interests during the school year via school clubs, actively participating as the president of Science Olympiad, captain of Academic Challenge, and captain of Mock Trial. Outside of school, Alan loves to cook for his family and friends. Eager to learn different cuisines and techniques, he can often be found watching the Food Network or YouTube videos, looking for more dishes to try at home. Alan also enjoys staying active by swimming as the captain of his school's varsity swim team and by playing Ultimate Frisbee with friends. In college, he looks forward to furthering his interests as well as discovering new ones to pursue in the future.

Alison Chen (陳安瑜) is a senior at Horace Greeley High School. She enjoys learning science and has attended the summer programs at John Hopkins Center for Talented Youth from 2014 to 2017. Alison has also been playing the violin for 8 years. She is a member of the school orchestra and an officer of the badminton club. To serve the community, Alison has been a volunteer at the Community Center of Northern Westchester, where she helps pack groceries in the food pantry and assists families in need. During the past summer, she also worked at a Häagen-Dazs store in Yonkers. Despite the challenges of managing eczema, which could be triggered by stress, food, weather, and environmental elements, she has stayed active and strived to pursue her interests with minimal disruption.

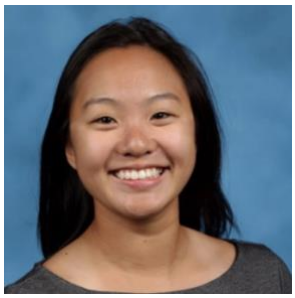


Jonathan Fan (范晁瑋) is a senior at Scarsdale High School. Despite the frequent moves of his family during his childhood, Jonathan has been able to adapt to the new environment, make new friends, keep up his schoolwork, and explore his interest in various extracurricular activities. Intrigued by the traditional Asian culture, he has been learning kendo (Japanese swordsmanship) and guzheng (Chinese harp) in his spare time. Jonathan is a quick learner and dedicated researcher, whose resourcefulness and trustworthiness have made him the go-to guy for his peers. With a passionate curiosity for learning new and unknown subjects, he aspires to pursue a future career in physics.

Andrew Lu (盧奕正) is a junior at Yorktown High School. He excels in academics, and has won multiple Principal's List awards. For his research project on mobile RGB-D image-based detection of stairs and crosswalks, Andrew won first place in computer science at the 2018 Somers Science Fair. He is also a member of the school's *FIRST* robotics team, which advanced to the world championship this year. Andrew was the principal cellist of Westchester Youth Symphony Orchestra, and has been selected to perform with the 2018 New York State School Music Association (NYSSMA) Conference All-State Symphonic Orchestra. He is currently a member of the New York Youth Symphony and the Chamber Music Institute for Young Musicians. Andrew is the founder of Yorktown string quartet, the president of YHS book club, and a member of the tennis varsity team. He has volunteered to teach children English, math, arts and sciences, assist senior citizens in using computers and technology, and perform music throughout the community. He speaks Chinese fluently and is proficient in Spanish.

Steven Mi (米子杰) is a junior at East Brunswick High School. He is passionate about math, science, music and writing. Because of his early fascination with math and science, Steven has passed the AP calculus BC exam with top score in 10th grade and won many awards in Math Olympiad, Science Olympiad, Science Bowl, and Central Jersey Math League. He is also a talented violinist, who has been a member of the New Jersey Regional and All-State Orchestra during the past four years. Steven has been writing for The New Observer Chinese newspaper in NJ since 2015, and was recently named Writer of the Month. He also participated in the student newspaper *Clarion* and international studies (Model United Nations) program in school. Steven enjoys serving his community and has volunteered at the East Brunswick Public Library and Highland Park Community Food Pantry. He is fluent in Chinese and currently takes 5 AP classes.

Isabelle Peng (彭慧如) is a senior at the Lawrenceville School. She is an avid learner and loves to pursue her interests in deeper learning, even taking her passion for film beyond the classroom and as an independent study. She also participates in interscholastic sports such as fencing and has a large presence in a myriad of on-campus music and dance organizations. Aside from academics and extracurricular activities, Isabelle enjoys dedicating time to community service. Isabelle has been performing the Chinese harp to retired sisters in Maryknoll and volunteering at her Tibetan Buddhist retreat since childhood. Over the years, she has expanded her responsibilities to organizing temple events and banquets, and honed in on her collaborating and problem-solving skills. Isabelle is intent on living in a "community of kindness" and practices this by extending her help to those in need. Isabelle has been traveling the world from a young age and working with people from all backgrounds, sparking her interest in understanding the cross-cultural interactions. She is currently studying the Middle East in school, and hopes to use her experiences as a global citizen to help people connect over similarities and find peace in their differences.



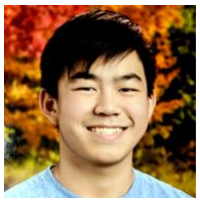
Diane Yang (楊得安) is a senior at Yorktown High School. She always has a passion for science, with her favorite subjects being physics and environmental science. She has been a member of the science research program at her school since sophomore year and has interned at the City College of New York for the past two summers. Her research involved creating self-sustaining energy harvesters with piezoelectric and electromagnetic technology and is currently pending publication. In college, she hopes to further explore the field of mechanical engineering. In her school, Diane is a member of the Amnesty International club and the midnight run club. She also raises money for cancer research as the co-captain of a 15-member Relay for Life team and advocates the importance of nature conservation as the chairperson of the Audubon Greenwich teen board. Her other interests include playing the cello, spending time outdoors, playing tennis, and reading novels of all genres.

Chinese Institute of Engineers, Greater New York Chapter
2018 Convention Banquet Performance

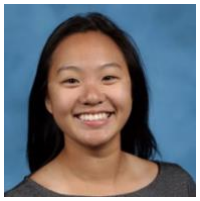
彭慧如 – 古箏獨奏
Isabelle Peng – Chinese harp solo
Spring arrives in Lhasa (春到拉薩) ..... 史兆元

盧奕正 – 大提琴獨奏
Andrew Lu – Cello solo
Cello Suite No. 1 in G major .....…….. J. S. Bach
1. Prelude

米子杰 – 小提琴獨奏
Steven Mi – Violin solo
Violin Concertino in G major, Op. 24 ..... O. Rieding
1. Allegro moderato



張逸文 – 我為甚麼喜愛科學
Alan Chang – Why I love science



楊得安 – 大提琴獨奏
Diane Yang – Cello solo
Cello Suite No. 3 in C major .....……..... J. S. Bach
6. Gigue

范晁瑋 – 劍道展示
Jonathan Fan – Kendo demonstration

陳安瑜 – 小提琴獨奏
Alison Chen – Violin solo
Violin Concerto No. 1 in E major, Op. 8, La primavera (Spring) ... A. Vivaldi
1. Allegro

CIE-USA ANNUAL AWARDS

The **CIE Distinguished Service Award** is bestowed upon an outstanding engineer, scientist, or technologist who is of Chinese origin and has made significant contributions toward science technology, industry, or economic development of a country or a community.

The **CIE Achievement Award** is presented to any person of Chinese origin (or any other origin whose contribution benefited the Chinese Society) who has made distinguished achievement in science, engineering or technology.

The **Institute Service Award** recognizes an individual who has performed outstanding service to the Institute.

Award Winners

The award winners for the past years are listed as follows:

Year	Award Winner	姓 名	Achievement
1957	Mr. K.C. Li	李國欽	Leadership in production of strategic metals, i.e. Tungsten, Tantalum, Molybdenum, Columbium, Hafnium, Zirconium and their alloys.
1958	Dr. Tsung Dao Lee Dr. Chen-Ning Yang	李政道 楊振寧	Co-authors on three papers on "Nonconservation of parity." Co-winners of Nobel Prize of physics in 1957.
	Dr. Chien-Shuing Wu	吳建雄	Performed experiments for both doctors Lee and Yang, and confirmed the authenticity of their theory
	Mr. Ieoh-Ming Pei	貝聿銘	Recognized as one of the top ten architects in the United States.
1959	Mr. Wen-Tsing Chow	周文俊	Inertial navigation and guidance system for missiles and space vehicles.
	Prof. Lan-Jen Chu	朱蘭成	Leading authority on microwave and special antennas.
	Prof. Yu-Hsiu Ku	顧毓琇	Leading engineer mathematician whose analysis of non-linear systems worldly known.
1960	Dr. Kuan-Han Sun	孫觀漢	Leading engineer and physicist in nucleonics field. Helped setting up the nuclear engineering laboratory in Hsin-Chu, Taiwan.
	Prof. Ju-Chin Chu	朱汝瑾	Well known consulting engineer and scientist. Unit operations in process development and engineering.
	Dr. Chao C. Wang	王兆振	Research in solid state microwave electronics, thermo-ionic emission and microwave plasma interaction.
1961	Prof. Tung-Yen Lin	林同棪	Leading authority on Prestressed Concrete.
	Dr. Wen-Yuan Pan	潘文淵	Contribution to the Ultra-high frequency technique, leading to the implementation of wider field of television service.

	Dr. Luke C. L. Yuan	袁家騮	Well-known figure on design, construction and experiments on high energy accelerators.
1962	Prof. David K. Cheng	鄭鈞	Advanced research on antenna and phased array.
	Dr. Thomas T. H. Lee	李天和	Research and development of high-power vacuum interrupters for the power industry.
	Prof. Shih I Pai	柏實義	Theories on magnetogasdynamics and plasma dynamics.
1963	Prof. Shu-Tien Li	李書田	Well-known author and consulting engineer. Also his development work on Unified Energy-Matrix Analysis."
	Prof. Chia Chiao Lin	林家翹	Contributions to the theory of hydrodynamic stability and theory of turbulence.
1964	Dr. Kern K. N. Chang	張可南	Outstanding theoretical and experimental research on electro-beam focusing and on parametric and tunnel diode devices.
	Prof. H. Y. Fan	范緒筠	Achieved international prominence in searching for the essential physical characteristics of semiconductors.
	Mr. T.C. Tsao	趙曾珏	Engineer, scientist, author and administrator of international renown. Fellow IEEE, Fellow AAS, MCIE, MIKE (United Kingdom), MASME, MIM, etc. Ardent supporter and past president of CIE.
1965	Prof. Ven-te Chow	周文德	World-known contribution in open-channel hydraulics.
	Prof. Y. C. Fung	馮肇楨	Authority on aeroelasticity and solid state mechanics.
	Prof. Choh-Hao Li	李卓皓	World famous bio-chemist, first isolated ACTH, then TSH, recently completed analysis of HGH (human growth hormone).
1966	Prof. C. J. Huang	黃振榮	Research in interphase mass transfer mechanisms.
	Prof. Tung-Hua Lin	林同燁	Authority on elastic and plastic behavior of structures to dynamic load.
	Dr. P. K. Tien	田炳耕	Outstanding research on parametric amplifiers and gas lasers.
1967	Prof. Arthur W. Lo	羅无念	Formation of some of the fundamental principles of digital electronics and development of a number of semiconductor and magnetic digital devices and circuits.
	Dr. Wellington H. T. Loh	陸孝同	Leading authority on dynamics and thermodynamics of re-entry and planetary entry.
1968	Prof. Chih-Bing Ling	林致平	Researcher in the field of applied mechanics and mathematics.
	Prof. Chia-Shun Yih	易家訓	Recognized for his achievements on the theory of nonhomogeneous stratified flow.
	Mr. Edward K. Nieh	聶光坡	Instrumental in the formulation of the Chinese Institute of Engineers, New York, Inc.

1969	Dr. Morgan C. Y. Sze	施銓元	In recognition for his work in the field of Chemical Engineering.
	Dr. An Wang	王安	Development of computer systems and electronic calculators.
1970	Dr. Way Dong Woo	何惠棠	For his contribution in the field of digital systems.
1971	Mr. Walter Fei	費驊	For his leadership and outstanding services in engineering management.
	Dr. Hsuan Yeh	葉玄	For his outstanding contribution in the field of fluid and analytical mechanics.
	Dr. Utah Tsao	曹友德	For his creative contribution in chemical process design.
	Mr. Benjamin K. Cheng	鄭國寶	Leadership and service to the Chinese Engineering Society.
1972	Dr. T. W. Liao	廖增式	For his high power and high voltage engineering research and development.
	Mr. C. D. Shiah	夏勤鐸	For his contributions in petroleum processes.
	Mr. Y. C. Yang	楊裕球	For his advanced concept in structural design.
	Mr. Shao C. Jem	詹紹啟	For his enthusiastic and consistent service to CIE-USA.
1973	Dr. Sin-I Cheng	程心一	For his contribution to Jet, Rocket, Nuclear, Ion, and Electric Propulsion.
	Mr. Jeffrey Chu	朱傳渠	For his contribution to The Continuous Development and Management of Computer Technology for the Past Quarter Century.
1973	Mr. J. T. Shaw	蕭存人	For his outstanding leadership in Development Industrial Enterprises and in Fostering International Relationship with Southeast Asia.
1974	Mr. Yun-Suan Sun	孫運璿	For his outstanding leadership and contributions in promoting technological research and development in The Republic of China.
	Dr. Hung-Chang Lin	凌宏璋	For his pioneering contributions to the mono-lithic integrated electronics technology
	Dr. Kang-Jen Liu	劉康仁	For his outstanding contributions to pure and allied chemistry.
1975	Mr. K. T. Li	李國鼎	For his outstanding contribution to the mobilization of productive resources in the Republic of China.
	Dr. Ernest Kuh	葛守仁	For his outstanding contribution to research and teaching in circuit theory and systems and his leadership in engineering education.
	Dr. George C. Sih	薛昌明	For his outstanding contribution in research and teaching in fracture mechanics.
1976	Mr. K. S. Chang	張光世	For his leadership in promoting the economic growth and industrial expansion in the Republic of China.
	Mr. H. C. Fang	方賢齊	For his contribution to the development of telecommunication systems in the Republic of China.

	Dr. Simon K. Chen	陳國祥	For his outstanding contribution to the development of diesel engines.
	Dr. Samuel C. C. Ting	丁肇中	For his outstanding contribution in the discovery of the "J" particle triggered the finding of a whole family of similar particles.
1977	Mr. Jerome S. N. Hu	胡新南	For his outstanding leadership in modernizing and expanding the petrochemical industries in the Republic of China.
	Dr. A. Tobey Yu	俞霭庭	For his contribution in the field of Material handling technology related to the design and construction of ship-barge loading systems.
	Dr. Wen H. Ko	葛文勛	For his contribution in bio-medical engineering and teaching.
1978	Mr. Lan-Kao Chen	陳蘭皋	For his distinguished leadership in modernizing and expanding the power industry in the Republic of China.
1978	Mr. I-Fang Tang	鄧義芳	For his outstanding contributions to the success of the industrial and economic development in the Republic of Singapore.
	Mr. Kuo-Chi Wang	王國琦	For his outstanding service to CIE in promoting the cooperation between the CIE/ROC and CIE/USA.
	Dr. Ti-Kang Kwei	桂體剛	For his pioneering contributions in the composite and diffusion in macromolecular systems.
	Dr. Tingye Li	厲鼎毅	For his fundamental contributions to laser-resonator theory and his outstanding contributions in optical communications.
1979	Mr. Chang-Ching Wang	王章清	For his outstanding contribution in the municipal planning and transportation engineering.
	Mr. Hsiao-Chang Yen	嚴孝章	For his outstanding worldwide contribution in construction engineering.
	Dr. Catherine S. H. Chen	陳夏瑞華	For her contribution to the advancement of polymer chemistry and engineering.
	Dr. Mo-Shing Chen	陳謨星	For his contribution to the advancement of electrical power engineering and technology.
	Mr. Frank Y. S. Chen	陳耀生	For his dedicated service to the Institute.
	Dr. Henry L. Wen	溫陵雄	For his dedicated service to the Institute.
1980	Mr. William Y. T. Chao	趙耀東	For his contribution to the steel industry in the Republic of China.
	Mr. Hsu Chang	張煦	For his contribution to magnetic memories and computer science.
	Mr. Gilbert Chin	陳耀煜	For his contribution to the fundamental understanding of crystal plasticity and to the development of magnetic alloys.
	Mr. George C. Lee	李元兆	For his contribution to structural engineering, bio-mechanics, and engineering education.

1981	Dr. T.S. Lin	林挺生	In recognition of his outstanding industrial leadership, educator and citizenship.
	Mr. Yung-Ning Wei	韋永寧	In recognition of his exemplary leadership in promoting industrial development in the Republic of China.
	Dr. Leonard Y. Liu	劉英武	In recognition of his outstanding organizational capability and system management and operation.
	Dr. Y. L. Fan	范又陵	In recognition of his excellent leadership in CIE operation.
1982	Mr. Yi-Ting Wong	汪彝定	In recognition of his outstanding contribution to the international trade promotion for ROC.
	Mr. S. F. Tung	董世芬	In recognition of his life-long devoted service in petrochemical industry and as a successful manager of national enterprise.
	Dr. Hwa-Nien Yu	虞華年	In recognition of his outstanding contribution to silicon technology and his pioneering work in VLSI technology.
	Mr. T. F. Huang	黃子發	In recognition of his numerous contributions in naval architecture and his successful design and building of the world's largest crude oil tanker.
	Dr. Roxy Ni Fan	范倪如珍	In recognition of her contribution to the modern printing technology.
1982	Mr. Y. C. Yang	楊裕球	In recognition of his devoted institute service and working spirit.
1983	Dr. King-Sun Fu	傅京生	For his leadership in Engineering education and contribution to pattern recognition.
	Mr. David S. Lee	李善麟	For his successful development of computer peripheral industry.
	Dr. Chi-Cheng Chang	張繼正	For his leadership in applied scientific management to government service.
	Mr. Ta-hai Lee	李達海	For his unique effort and success in petroleum industry.
	Mrs. Linda Liu	劉黎琬	For her devoted service to CIE/USA.
1984	Dr. Morris Chang	張忠謀	For his outstanding leadership and pioneering contribution to electronic industry.
	Dr. David H. Cheng	鄭鴻	For his outstanding contribution to engineering education.
	Dr. T. Y. Shen		For his outstanding achievement in medicinal chemical research.
	Dr. S. S. Shu	徐賢修	For his contribution in promoting industrial research and development in the Republic of China.
	Dr. Vivin W. Yen	嚴吳舜文	For her pioneering contribution and leadership in textile and automotive industries in the Republic of China.
1985	Dr. Alfred Y. Cho	卓以和	For his outstanding research in new technology, materials and devices.
	Mr. W. M. Lu	盧偉民	For his achievement in city planning both in the USA and abroad.

	Dr. David I. J. Wang	王義炤	For his advancement of new technology and new industrial ventures.
	Dr. Taylor G. Wang	王贛駿	For his contribution to space physics.
	Dr. C. H. Yen	閻振興	For his pioneering promotion of METS and National Education in the Republic of China.
	Dr. D. H. Hu	胡定華	For his leadership in technological development and management in the Republic of China.
	Dr. Vincent H. K. Chu	瞿浩光	For his unwavering and devoted service to CIE.
1986	His Excellency C. K. Yen	嚴家淦	For his uninterrupted support and policy guidance to the METS since its inception in 1966.
	Dr. James Wei	韋潛光	For his excellent leadership in engineering research and education.
	Dr. Y. C. L. (Susan) Wu		For her pioneering work in magnetohydrodynamics research and leadership in energy conversion R & D programs.
	Dr. Charles Kao	高錕	For his pioneering research and accomplishment in the field of optical fiber communications.
1987	Dr. J. Carl Hsu	許濬	For his leadership and outstanding contributions to the development of switching and computer systems.
	Mr. Stanley Shih	施振榮	A pioneer contributor to a successful high-tech industry in a developing country.
	Dr. Paul Ching Wu Chu	朱經武	For his pioneering contribution to superconductivity.
1987	Dr. Sun-Nan Hong	洪勝男	For his leadership and dedication to the formation of the CIE-USA National Council.
	Dr. Kuei-Wu Tsai	蔡桂伍	For his leadership and dedication to the formation of the CIE-USA National Council.
1988	Dr. L. A. Chen	陳履安	For his contribution to the promotion planning and coordination of the technological in the Republic of China.
	Dr. H. T. Kung	孔祥重	For his contribution to the development of systolic arrays in computer science.
	Dr. Patrick Kung	龔忠恕	For his contribution to the medical applications of monoclonal antibody and T-cells.
	Dr. Otto C. C. Lin	林垂宙	For his scientific achievements in polymeric field and his contribution to the establishment of an outstanding material research institute in the Republic of China.
	Dr. Wen Lin	林文	For his dedicated and unselfish service to the professional cause of this Institute.
1989	Dr. Herbert Chang	張佑邦	For his outstanding contribution to the Electronic Switching Technology and Telecommunication Industry.
	Dr. Chintay Shih	史欽泰	For his contributions to the Advancement of the Micro-Electronic Technology and Electronic Industry in the Republic of China.

	Mr. Yung-Shih Kuan	關永實	For his distinguished service in the Advancement of Petrochemical Industry in the Republic of China.
	Dr. Shih-Chien Yang	楊世緘	For his distinguished contributions to the Scientific and Industrial in the Republic of China.
	Ms. Grace C. C. Lee	李慶珠	For her leadership and dedication to the Institute and the Professional Scientific Community.
	Dr. Chung-Ming An	安仲明	For his dedicated service to the Institute and Technical Advancement in the Engineering Society.
1990	Mr. Arthur Y. Chen	陳豫	For his outstanding contributions to the engineering and construction industry in ROC.
	Dr. Michael C. Chen	陳建國	For his distinguished service and outstanding financial management for the Institute.
	Dr. N. Y. Chen	陳迺沅	For his outstanding contributions to the Zeolite Catalyst Technology and Petrochemical Industry
	Mr. Ya-Moh Dong	童亞牧	For his distinguished service in the advancement of engineering and construction industry in ROC.
	Dr. Chin-Lung Yeh	葉金龍	For his distinguished service to the Institute and the METS.
1991	Dr. Shirley W. Y. Kuo	郭婉容	For her distinguish service in the economic planning and development in ROC.
	Dr. Eugene Y. H. Chien	簡又新	For his outstanding contribution to environment legislation and creativity in the development of Environmental Awareness in ROC.
	Dr. Gordon T. Chen	陳大雄	In recognition of his service to the Institute.
	Dr. Eric S. Hsiue	薛一新	In recognition of his service to the Institute and METS.
	Dr. Wei-Kuo Lee	李維國	In recognition of his dedicated service to the Institute.
1992	Dr. Anthony C.H. Ku	谷家恆	For his achievement in applied research and technology development.
	Dr. Norman N. Li	黎念之	For his achievement in separation science and technology.
	Dr. K. K. Wang	王國金	For his achievement in automation and manufacturing engineering
	Mr. Vincent C. Siew	蕭萬長	For his leadership in promoting the economic growth in Taiwan.
1992	Mr. Junru Ma	馬俊如	For his achievement in promoting foreign expert and technology exchange for China.
	Dr. Charles M. Tsai	蔡明曉	For his dedicated service to the Institute and METS
1993	Dr. Winston H. Chen	陳文雄	For his accomplishment and leadership in the electronics contract manufacturing business.
	Dr. Fenggan Zhuang	莊逢甘	For his outstanding contribution to the fundamental science in aerodynamics and the development of aerospace technology in China.

	Mr. Patrick Wang	王華燕	For his entrepreneurship and successful commercialization of microwave communication technology in Taiwan
	Mr. Jie Wang	王吉	For his exemplary entrepreneurial spirit and managerial skill in transforming a research institute to a prosperous enterprise in Jiangsu
	Ms. Li-lan Zhu	朱麗蘭	For her leadership in planning and implementation of central policies for the development of modern technologies in China
	Dr. Shu-Jou Lee	李樹久	For his dedicated service and accomplishment in guiding the economic development in Taiwan
	Dr. Janpu Hou	侯展璞	For his dedicated service to the Institute and SATEC
1994	Dr. Hui Hwui Chin	陳幼慧	For her dedicated service to the Institute
	Dr. David C. Chang	張鐘浚	For his accomplishment in the academia and leadership in the field of electromagnetic
	Dr. Ying-Kao Lee		For his outstanding contribution to the areas of automotive and electronic coatings
	Mr. Chung-Yu Wang	王鐘渝	For his leadership and accomplishment in the steel industry in Taiwan
	Prof. Xuan Wang	王選	For his leadership and accomplishment in the Chinese typesetting system in China
	Mr. Yun Kuo	果芸	For his dedicated service and accomplishment in guiding the information technology in Taiwan
1995	Mr. Chung-Kung Shih	石中光	For his leadership and outstanding contribution to public construction
	Mr. C. S. Liu		For his pioneering contribution to pharmaceutical manufacturing industry
	Dr. Chih Yuan Lu	盧志遠	For his outstanding achievement in submicron IC development
	Mr. Guangnan Ni	倪光南	For his excellent contribution to the development of computer industry
	Dr. Thomas P.K. Chang	張平康	For his dedicated service to the Institute
1996	Mr. Robert H. C. TSAO	曹興誠	For his achievements and outstanding contribution in the development of microelectronics industries in ROC.
	Dr. Steve S. Cheng	鄭瑞雨	For his achievements and outstanding contribution in the development of communication industries in ROC.
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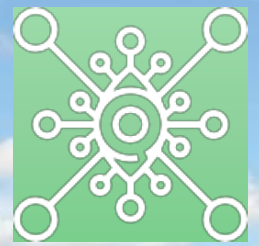

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