The 1st International Conference on Ubiquitous Security (UbiSec 2021)

December 28 - 31, 2021

Guangzhou, China

http://ubisecurity.org/2021/

Advance Program

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09:20-10:00	**Invited Talk 2:** Intel® Ultra Cloud Client Solution and Its Industry Application **Speaker: Hai Shen**, Engineering Manager, Intel Corporation
10:00-10:20	**Coffee/Tea Break**
10:20-11:00	**Invited Talk 3:** An Innovative Way to Provide Value-add Services at Pre-boot Stage **Speaker: Fujin Huang**, Senior Architect, Intel Corporation
11:00-11:40	**Invited Talk 4:** Research on Key Technologies of Dynamic Modeling for User Privacy in Mobile Application Services **Speaker: Prof. Entao Luo,** Hunan University of Science and Engineering
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14:00-14:40	**Invited Talk 5:** Secure Search in Cloud Computing **Speaker: Prof. Qin Liu**, Hunan University
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15:40-16:20	**Invited Talk 7:** New Application of Classical Cryptography in Privacy Protection **Speaker: Prof. Guihua Duan**, Central South University
16:20-17:30	**Invited Talk 8:** sEMG-based Motion Intent Recognition Methods in Non-ideal Conditions **Speaker: Prof. Feng Wang**, China University of Geosciences
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09:10-09:50	**Invited Talk 10:** Deep Broad Learning for Cross-Domain Emotion Classification
	Speaker: Prof. Sancheng Peng, Guangdong University of Foreign Studies
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10:10-10:50	**Invited Talk 11:** The Development Trends and Examples of Smart Cities
	Speaker: Dr. Qiang Zhang, Nanchang Municipality
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14:00-14:40	**Invited Talk 14:** Study on Hardware-assisted Trusted Execution Environment in x86 Platform
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`UbiSec 2021 Program Preview

Keynotes

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Access Control Convergence: Challenges and Opportunities

Keynote 2: Prof. My T. Thai, IEEE Fellow, the University of Florida, USA

Provable Guarantees on Privacy in the Age of Adversarial Learning

Keynote 3: Prof. Vincenzo Piuri, IEEE Fellow and ACM Distinguished Scientist, Professor at The University of Milan, Italy

Title: Artificial Intelligence for Advanced Biometrics

Keynote 4: Prof. Wanlei Zhou, Vice Rector (AcademicAffairs), Dean of Institute of Data Science, City University of Macau, Macau

Title: Dealing with Malicious Agents in Intelligent Multi-Agent Applications

Keynote 5: Prof. Yang Xiao, IEEE Fellow and IET Fellow, The University of Alabama, United States

Title: Electricity Theft Detection via Modeling Attackers' Behaviors

Invited Talks

08:40-11:40, December 30 (Thursday)

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Paper Sessions

UbiSec-1 ~ UbiSec-3

The 1st International Conference on Ubiquitous Security (UbiSec 2021)

Keynote 1: Access Control Convergence: Challenges and Opportunities

Speaker: Prof. Ravi Sandhu, University of Texas at San Antonio, USA

Chair: Prof. Ryan Ko, University of Queensland, Australia

About the Keynote Speaker

Ravi Sandhu is Professor of Computer Science, Executive Director of the Institute for Cyber Security and Lead PI of the NSF Center for Security and Privacy Enhanced Cloud Computing at the University of Texas at San Antonio, where he holds the Lutcher Brown Endowed Chair in Cyber Security. Previously he served on the faculty at George Mason University (1989-2007) and Ohio State University (1982-1989). He holds BTech and MTech degrees from IIT Bombay and Delhi, and MS and PhD degrees from Rutgers University. He is a Fellow of IEEE, ACM, AAAS and the National Academy of Inventors. He has received numerous awards from IEEE, ACM, NSA, NIST and IFIP, including the 2018 IEEE Innovation in Societal Infrastructure award for seminal work on role-based access control (RBAC). A prolific and highly cited author, his research has been funded by NSF, NSA, NIST, DARPA, AFOSR, ONR, AFRL, ARO and private industry. His seminal papers on role-based access control established it as the dominant form of access control in practical systems. His numerous other models and mechanisms have also had considerable real-world impact. He served as Editor-in-Chief of the IEEE Transactions on Dependable and Secure Computing, and previously as founding Editor-in-Chief of ACM Transactions on Information and System Security. He was Chairman of ACM SIGSAC, and founded the ACM Conference on Computer and Communications Security, the ACM Symposium on Access Control Models and Technologies and the ACM Conference on Data and Application Security and Privacy. He has served as General Chair, Steering Committee Chair, Program Chair and Committee Member for numerous security conferences. He has consulted for leading industry and government organizations, and has lectured all over the world. He is an inventor on 31 security technology patents and has accumulated over 45,000 Google Scholar citations for his papers. At UTSA his team seeks to pursue world-leading research in both the scientific foundations of cyber security and their applications in diverse 21st century cyber technology domains, including cloud computing, internet of things, autonomous vehicles, big data and blockchain. Particular focus is on foundations and technology of attribute-based access control (ABAC) as a successor to RBAC in these contexts, and on converegnce of access control concepts to solve real-world challenges. His web site is at www.profsandhu.com.

Abstract:

There have been a handful of ground-breaking concepts in access control over the past half century which have received significant traction in practical deployments. These include the fundamental policy-mechanism and operational-administrative distinctions, along with the authorization models of discretionary access control (DAC), mandatory access control (MAC), role-based access control (RBAC), attribute-based access control (ABAC) and relationship-based access control (ReBAC). In this talk we will argue that modern cyber systems require an effective convergence of these concepts, in that they must coexist in mutually supportive synergy. We will highlight some challenges and opportunities in making this vision a practical reality.

Keynote 2: Provable Guarantees on Privacy in the Age of Adversarial Learning

Speaker: Prof. My T. Thai, IEEE Fellow, the University of Florida, USA

Chair: Prof. Kim-Kwang Raymond Choo, University of Texas at San Antonio, USA

About the Keynote Speaker

My T. Thai is a University of Florida (UF) Professor of Computer & Information Science & Engineering and Associate Director of UF Nelms Institute for the Connected World. Dr. Thai's current research interests include explainable AI, AI Security and Privacy, and Optimization. The results of her work have led to 7 books and 250+ publications in highly ranked international journals and conferences, including several best paper awards from the IEEE and ACM. Dr. Thai received many recognitions, including UF Research Foundation professorship, IoT Term Endowed professorship, NSF CAREER Award, and DTRA Young Investigator Award. She is an IEEE Fellow. Among many professional activities, Dr. Thai currently serves as Editor-in-Chief of the Journal of Combinatorial Optimization, and EiC of the IET Blockchain journal.

Abstract:

Despite the impressive feats of using deep learning models in many application domains, researchers and the public have grown alarmed by two unsettling deficiencies of these otherwise powerful models: 1) they are prone to interference or deception from adversarial attacks, and 2) they can be exploited to reveal sensitive information of private training data. Simultaneously guaranteeing both user privacy and robustness against adversarial attacks is of utmost need, unfortunately, very challenging. In this talk, we will discuss a core foundation of privacy preserving in adversarial learning, to better address the trade-offs between privacy loss, certified defenses, and model performance.

Keynote 3: Artificial Intelligence for Advanced Biometrics

Speaker: Prof. Vincenzo Piuri, IEEE Fellow and ACM Distinguished Scientist, The University of Milan, Italy

Chair: Prof. Qin Liu, Hunan University, China

About the Keynote Speaker

Vincenzo Piuri has received his Ph.D. in computer engineering at Polytechnic of Milan, Italy (1989). He is Full Professor in computer engineering at the University of Milan, Italy (since 2000). He has been Associate Professor at Polytechnic of Milan, Italy and Visiting Professor at the University of Texas at Austin, USA, and visiting researcher at George Mason University, USA.

His main research interests are: artificial intelligence, computational intelligence, intelligent systems, machine learning, pattern analysis and recognition, signal and image processing, biometrics, intelligent measurement systems, industrial applications, digital processing architectures, fault tolerance, cloud computing infrastructures, and internet-of-things. Original results have been published in 400+ papers in international journals, proceedings of international conferences, books, and book chapters.

He is Fellow of the IEEE, Distinguished Scientist of ACM, and Senior Member of INNS. He is President of the IEEE Systems Council (2020-21) and IEEE Region 8 Director-elect (2021-22), and has been IEEE Vice President for Technical Activities (2015), IEEE Director, President of the IEEE Computational Intelligence Society, Vice President for Education of the IEEE Biometrics Council, Vice President for Publications of the IEEE Instrumentation and Measurement Society and the IEEE Systems Council, and Vice President for Membership of the IEEE Computational Intelligence Society. He has been Editor-in-Chief of the IEEE Systems Journal (2013-19). He is Associate Editor of the IEEE Transactions on Cloud Computing and has been Associate Editor of the IEEE Transactions on Computers, the IEEE Transactions on Neural Networks, the IEEE Transactions on Instrumentation and Measurement, and IEEE Access.

He received the IEEE Instrumentation and Measurement Society Technical Award (2002) and the IEEE TAB Hall of Honor (2019). He is Honorary Professor at: Obuda University, Hungary; Guangdong University of Petrochemical Technology, China; Northeastern University, China; Muroran Institute of Technology, Japan; Amity University, India; and Galgotias University, India.

Abstract:

Biometrics concerns the study of automated methods for identifying an individual by measuring one or more physical or behavioral features of him. Certain physical human features or behaviors are characteristics that are specific and can be uniquely associated to one person. Retinas, iris, DNA, fingerprint, palm print, or pattern of finger lengths are typical physical features that are specific to individuals. Also the voice print, gait, or handwriting can be used to this purpose. Nowadays biometrics is rapidly evolving. This science is getting more and more accurate in identifying persons and behaviors. Consequently, these technologies become more and more attractive and effective in critical applications, such as to create safe personal IDs, to control the access to personal information or

physical areas, to recognize terrorists or criminals, to study the movements of people, and to monitor the human behavior.

The use of biometrics in the real life often requires very complex signal and image processing and scene analysis, for example encompassing biometric feature extraction and identification, individual tracking, face tracking, eye tracking, liveness/anti-spoofing tests, and facial expression recognition. Artificial intelligence techniques (including neural networks, fuzzy logic, evolutionary computing, and multi-agent systems) have been proved to be useful and effective in addressing this kind of data processing, especially when it is difficult to identify an algorithm while sufficiently descriptive examples are available, or when fuzzy descriptions are more natural to capture the essence of the problem, or when complex non-linear optimization is needed, or when multiple agents cooperate in solving the application problem.

This talk will review the domain of biometrics, its applications in various domains and the relevance of artificial intelligence, in particular neural networks and deep learning to effectively solve various problems in these applications.

Keynote 4: Dealing with Malicious Agents in Intelligent Multi-Agent Applications

Speaker: Prof. Wanlei Zhou, Vice Rector (AcademicAffairs), Dean of Institute of Data Science, City University of Macau, Macau

Chair: Prof.Wenjun Jiang, Hunan University, China

About the Keynote Speaker

Professor Wanlei Zhou is currently the Vice Rector (Academic Affairs) and Dean of Institute of Data Science, City University of Macau, Macao SAR, China. He received the B.Eng and M.Eng degrees from Harbin Institute of Technology, Harbin, China in 1982 and 1984, respectively, and the PhD degree from The Australian National University, Canberra, Australia, in 1991, all in Computer Science and Engineering. He also received a DSc degree (a higher Doctorate degree) from Deakin University in 2002. Before joining City University of Macau, Professor Zhou held various positions including the Head of School of Computer Science in University of Technology Sydney, Australia, the Alfred Deakin Professor, Chair of Information Technology, Associate Dean, and Head of School of Information Technology in Deakin University, Australia. Professor Zhou also served as a lecturer in University of Electronic Science and Technology of China, a system programmer in HP at Massachusetts, USA; a lecturer in Monash University, Melbourne, Australia; and a lecturer in National University of Singapore, Singapore. His main research interests include security, privacy, and distributed computing. Professor Zhou has published more than 400 papers in refereed international journals and refereed international conferences proceedings, including many articles in IEEE transactions and journals.

Abstract:

Multi-agent systems, especially intelligent multi-agent systems, are widely used in many applications including auto-driving, disaster response, drone swarms, robotics, online trading, IoT, social structure modelling and surveillance etc. However, wide applications of multi-agent systems also bring serious security and privacy issues. For example, disasters will happen if an autonomous car is controlled by a malicious user; and confusions will arise if adversaries use deep-fake to create fake news items. It is almost impossible to predict and control the behaviours of malicious agents (adversaries and malicious users). One way to address the security and privacy issues caused by these malicious agents is to make sure that the applications still function correctly despite the presence of them. In this presentation we focus on multi-agent security and privacy, aiming to overcome the security and privacy issues in two situations: the presence of malicious agents giving false advices and the privacy-preserving in multi-agent planning. In both cases, we aim to avoid and reduce the impact of malicious agents to the applications instead of identifying and eliminating them, and we adopt the differential privacy technique to achieve our goal. The case studies are based on our recent work shown below.

1. Dayong Ye, Tianqing Zhu, Wanlei Zhou, and Philip S. Yu, "Differentially Private Malicious Agent Avoidance in Multiagent Advising Learning", IEEE Transactions on Cybernetics, 50(10): 4214-4227 (2020).

2. Dayong Ye, Tianqing Zhu, Zishuo Cheng, Wanlei Zhou and Philip S. Yu, "Differential Advising in Multiagent Reinforcement Learning", accepted by IEEE Transactions on Cybernetics, early access:

https://ieeexplore.ieee.org/document/9269516

3. Dayong Ye; Tianqing Zhu; Sheng Shen; Wanlei Zhou; Philip Yu. "Differentially Private Multi-Agent Planning for Logistic-like Problems", accepted by IEEE Transactions on Dependable and Secure Computing. doi: 10.1109/TDSC.2020.3017497. Available online:

https://ieeexplore.ieee.org/abstract/document/9170873.

Keynote 5: Electricity Theft Detection via Modeling Attackers' Behaviors

Speaker: Prof. Yang Xiao, IEEE Fellow and IET Fellow, The University of Alabama, United States

Chair: Prof. Bruno Crispo, University of Trento, Italy

About the Keynote Speaker

Dr. Yang Xiao is currently a Full Professor with the Department of Computer Science, The University of Alabama, Tuscaloosa, AL, USA. His current research interests include cyber-physical systems, the Internet of Things, security, wireless networks, smart grid, and telemedicine. He has published over 300 SCI-indexed journal papers (including over 50 IEEE/ACM transactions papers) and 250 EI indexed refereed conference papers related to these research areas. He was a Voting Member of the IEEE 802.11 Working Group from2001 to 2004, involving the IEEE 802.11 (WIFI) standardization work. He is IEEE Fellow and an IET Fellow. He currently serves as the Editor-in-Chief of Cyber-Physical Systems (Journal). He has served an Editorial Board or Associate Editor of 20 international journals, including the IEEE Transactions on Cybernetics since 2020, IEEE Transactions on Systems, Man, and Cybernetics: Systems (2014-2015), IEEE Transactions on Vehicular Technology (2007-2009), and IEEE Communications Survey and Tutorials (2007-2014). He has served as a Guest Editor over 20 times of different international journals, including the IEEE Transactions on Network Science and Engineering, IEEE Network, IEEE Wireless Communications, and ACM/Springer Mobile Networks and Applications (MONET).

Abstract:

Smart meters may potentially be attacked or compromised to cause certain security risks including losing tons of money each year due to thefts. It is challenging to identify malicious meters when there are a large number of users. In this talk, three detection methods are introduced: approximation-based approaches including NFD for electricity theft detection, FNFD for fast electricity theft detection and verification, and CNFD for colluded electricity theft detection. In our methods, we model attackers' behaviors mathematically and understand attackers thoroughly so that we can detect attackers better.

Invited Speaker 1: Ming WU, Engineering Manager, Intel Corporation

Title: A Virtual Computing and Storage Approach to Computing Continuum

Chair: Prof. Xiaofei Xing, Guangzhou University, China

Abstract: The proliferation of information technology and global-wide deployment of broadband and 5G infrastructure make computer hardware unprecedented cheap and internet access ever-increasing easy. These changes have brought an imperceptible trend that more users might have multiple computing devices together accessing same copy of personal software environment from multiple devices at geographically different locations. Current technologies to address this request have inevitable limitations in network dependency, native computing experience or only for specific application only. In this session, an end-to-end virtual computing and storage (VCS) approach to cloud-edge-client collaborative computing continuum is proposed under the inspiration of transparent computing theory. It's based on virtual computing at client side to make full use of hardware for entire software stack but keeps software and personalized setting of each individual user with virtual storage mechanism. With the collaboration between cloud-edge-client, the user-based desktop environment – the entire software stack - could migrate among multiple clients and even to heterogeneous clients within system wide network. We also provides optimizations, system evaluation and analysis to this approach.

Short-Bio: Ming Wu received his B.Sc. and M.Sc degrees in computer science, from Tsinghua University, China, in 1997 and 1999 respectively. He also held a minor degree of B.Economics from Tsinghua University in 1997. Ming joined Intel in 2004 and served as different technical leadership roles like senior engineer and engineering manager in SSG. He led the development of several UEFI embedded projects including Intel® Boot Loader Development Kit and Intel® Software Solution for Transparent Computing, and owned the collaboration with universities and enterprises in Transparent Computing. His working interests include computer architecture, computer network, distributed system and embedded systems, and he published several technical papers in these areas. Before joining Intel he worked for two startup companies to build internet router and network security equipment.

Invited Speaker 2: Hai Shen, Marketing Manager, Intel

Title: Intel® Ultra Cloud Cllent Solution and Its Industry Application

Chair: Prof. Xiaofei Xing, Guangzhou University, China

Abstract: Cloud client has huge market in multiple industries and its computing architectures and solutions keep evolving to be more effective, secure and robust. This session will talk about typical cloud client market status and industry application, introduce Intel® Ultra Cloud Client (UCC) Solution and its key competitive advantages, and shares some UCC key application use cases in education, healthcare, and banking market segments.

Short-Bio: Hai Shen is marketing manager in Internet of Things Group in Intel. He is now responsible for education market analysis and solution development, promotion and scaling with ecosystem partners. Hai graduated from Northwestern Polytechnical University in 2006 and holds a master degree in software engineering. Hai joined Intel in 2004 and have worked as training manager, software community manager, academic program manager, technical marketing engineer in various teams in Intel.

Invited Speaker 3: Fujin Huang, Senior Architect, Intel Corporation

Title: An Innovative Way to Provide Value-add Services at Pre-boot Stage

Chair: Prof. Xiaofei Xing, Guangzhou University, China

Abstract: There are increasing and strong requests to provide value-add services during pre-boot stage on modern platforms, such as facial recognition service for user authentication before booting to target OS, and security service for validating the integrity of OS image before booting. Most of these value-added services are quite complex software applications, which may need multitasking software architecture and high-performance peripherals such as AI acceleration cards and high-resolution camera. Also, it is required to loading the target OS directly without reboot after running value-add services. A typical idea to address these requests is to implement the services as software modules in BIOS level. However, BIOS is quite a low-level and enclosed system which looks like a black box to most developers and customers. It's single threaded and most of its hardware drivers could not provide high performance experience. We here present a generic and scalable mechanism to provide high performance value-add services with multi-threading complex tasks during pre-boot stage.

Short-Bio: Fujin Huang received his B.Sc. degree in Control Science and Engineering (CSE) from Nanchang University, China, and his M.Sc. degree in CSE from Shanghai Jiaotong University, China, in 2005 and 2008, respectively. Fujin is the senior platform architect of Intel China Asia Pacific R&D Ltd. Since Fujin joined Intel in 2008, he contributed in various product projects from UEFI BIOS to Turn-Key solutions, and filed several technical patents. His research interests include cloud computing, big data and edge computing.

Invited Speaker 4: Prof. Entao Luo, Hunan University of Science and Engineering

Title: Research on Key Technologies of Dynamic Modeling for User Privacy in Mobile Application Services

Chair: Prof. Xiaofei Xing, Guangzhou University, China

Abstract: Traditional privacy protection schemes for mobile users often only focus on protecting the privacy of static data sets at a certain stage, but it is difficult to dynamically measure and adaptively protect the dynamic evolution of private data during the whole process. This research t intends to draw on the latest research results in the fields of deep learning, knowledge graphs, data mining, data publishing, etc., and commits to establishing a set of key technology systems suitable for the dynamic protection of mobile users'privacy. First, a dynamic measurement model based on deep learning is proposed to enhance the protection of user privacy and the selfadaptive evolution characteristics of the model. Secondly, the protection mechanism of multidimensional sensitive data generalized hierarchical tree is proposed to realize the user privacy protection requirements with non-relevant and non-differentiation. next, a data mining scheme based on decision tree under differential privacy is proposed, which can realize effective data value mining without exposing user privacy. Finally, a discontinuous data dynamic publishing scheme with hidden user relationship graphs is proposed to prevent attackers from guessing the relationship of user data and improve publishing efficiency.

Short-Bio: Entao Luo, He is a professor at the School of Information Engineering, Hunan University of Science and Technology, He received his Doctor's degree in Software Engineering from Central South University, P. R. China, His research fields include mobile social networking, machine learning, and edge computing security and privacy preserving. He has published more than 30 technical papers in the above areas, including Journal of Software、Journal of Computer Research and Development、Information Science、FGCS、IEEE Communications Letters etc. In recent years,His research is supported by Key Project of the National Natural Science Foundation of China, National Natural Science Foundation of Hunan Province, Open project of Guangxi Key Cryptography Laboratory, and Science and technology program of Yongzhou city. Dr. Luo is a Member of CCF, and Member of the IEEE and IEEE VTS.

Invited Speaker 5: Prof. Qin Liu, Hunan University

Title: Secure Search in Cloud Computing

Chair: Prof. Shuhong Chen, Guangzhou University, China

Abstract: Cloud computing, providing a wide variety of services in a pay-as-you-go fashion, is an extremely successful paradigm of service-oriented computing. With the increasing popularity of cloud-based services, consumers are highly motivated to outsource their data and computing services to cloud platforms. To protect user privacy from the cloud service provider (CSP), existing research suggests encrypting data before outsourcing. This makes traditional data services like keyword-based searches very challenging. The simple solution of downloading all the encrypted data and decrypting them locally is extremely expensive. Therefore, investigating an efficient search service over ciphertexts becomes a paramount urgency. This talk will investigate security and privacy issues in cloud computing, and attempt to identify possible solutions to achieve secure search services in cloud computing.

Short-Bio: Qin Liu received her B.S. in Computer Science in 2004 from Hunan Normal University, China, received her M.S. in Computer Science in 2007, and received her Ph.D. in Computer Science in 2012 from Central South University, China. She has been a Visiting Student at Temple University, USA. Now, she is an Associate Professor in the College of Computer Science and Electronic Engineering at Hunan University, China. Her research interests include security and privacy issues in cloud computing and social networks, and big data security. She has published more than 60 technical papers and books/chapters in the above areas, including top international journals and conferences like IEEE TPDS, IEEE TSC, ACM CCS, IEEE INFOCOM, and so on. She has been serving as a Guest Editor, Conference vice Co-chair, Workshop Co-Chair, Publicity Chair/Co-Chiar, TPC, and reviewer for international journal/conference proceedings.

Invited Speaker 6: Prof. Xiaolong Hu, Central South University

Title: Virtualization of Block Device in Edge AI Computing

Chair: Prof. Tao Peng, Guangzhou University, China

Abstract: Edge computing devices have strong heterogeneity and different architecture. It is a great challenge to deploy reconfigurable operating systems and applications on massive edge devices. In addition, with the development of operating system, the high performance and consistency of storage and file system software stack is also a hot innovation field. This talk introduces the origin and essence of block device virtualization technology, discusses the use of block device virtualization / transparent computing technology to solve the problems faced in the deployment of edge computing devices. An edge image AI computing device based on hardened virtual block equipment is designed and implemented for intelligent identification of EHV GIS(Gas Insulation Switch) contact terminal.

Short-Bio: Xiaolong Hu received his Bachelor's degree in Computer Science and Engineering from Harbin Institute of Technology, Master's degree and Doctor's degree in Space Physics from University of Science and Technology of China. He is now an associate professor in Central South University. His research interests include Operating System, Embedded system, Image processing and machine learning. He has published more than 50 technical papers in space physics and computer science.

Invited Speaker 7: Prof. Guihua Duan, Central South University

Title: New Application of Classical Cryptography in Privacy Protection

Chair: Shuhong Chen, Guangzhou University, China

Abstract: In this talk, we firstly introduce the basic cryptographic protocols, and then discuss the deformation and application of advanced cryptographic protocols such as blind signature protocol, inadvertent transmission protocol and secure computing protocol.

Short-Bio: Guihua Duan received her PhD in Computer Science and Technology from Central South University in 2010. She is currently an Associate Professor in the School of Computer Science and Engineering, Central South University. Her research interests include security and privacy, and big data. She has published more than 20 academic papers, presided over or participated in 4 National Natural Science Foundation projects, served as guest editor of IJAACS special issue and program co-chair of TrustCom2012, and won the first prize of provincial teaching competition and the title of teaching expert of teachers in colleges and universities in Hunan Province.

Invited Speaker 8: Prof. Feng Wang, China University of Geosciences

Title: sEMG-based Motion Intent Recognition Methods in Non-Ideal Conditions

Chair: Prof. Shuhong Chen, Guangzhou University, China

Abstract: Motion intent recognition is a key technology for intelligent rehabilitation robots. In sEMG (surface electromyography)-based recognition, most studies aim at improving recognition accuracies. While in real applications, sEMG-based recognition systems are limited by many disturbances in non-ideal conditions. We need to focus on the robustness of sEMG-based recognition. In this talk, I will share some disturbances in non-ideal conditions, including electrode shifts, individual differences, muscle fatigue, limb postures and others. I will also share many novel methods that are proposed to remove or reduce the impact of these disturbances, including building sEMG-based datasets, exploiting deep-learning-based and transfer- learning-based recognition, and sEMG decomposition.

Short-Bio: Feng Wang received his Ph.D. degree in computer science from Central South University, Changsha, China, in 2018. He was an overseas researcher (JSPS Fellow) with the School of Engineering, Tokyo University of Technology, Japan, from 2019 to 2021. He is currently an associate professor with the School of Automation, China University of Geosciences, Wuhan, China. His research interests include social network analysis, machine learning, Internet of Things, motion intent recognition and recommendation systems. He has published more than 20 technical papers in the above areas, including top international journals like Information Sciences and top international conferences like IFAC World Congress. His research is supported by National Natural Science Foundation of China, China Postdoctoral Science Foundation, Japan Grantsin-Aid for JSPS Research Fellows. Dr. Wang is a Member of IEEE Industrial Electronics Society, and Member of the IEEE.

Invited Speaker 9: Prof. Tian Wang, Beijing Normal University

Title: Sensor-Cloud and Edge Computing: Overview, Solutions, and Directions

Chair: Prof. Shuhong Chen, Guangzhou University, China

Abstract: Sensor-cloud originates from the extensive use of Wireless Sensor Networks (WSNs) and cloud computing. However, there are obvious limitations in both WSNs (e.g., communication, storage, energy, computation, and scalability) and cloud computing (e.g., high delay, longdistance transmission, and privacy disclosure). In this talk, Prof. Wang examines the origins of sensor-cloud and provides an in-depth and comprehensive discussion of three key challenges, namely reliability, energy, and heterogeneity. He also introduces some initial designs of new edge-based schemes to address these challenges and concludes the talk with a discussion on the remaining challenges and future research directions.

Short-Bio: Prof. Wang received his BEng and MEng degrees in computer science and technology from Central South University and his Ph.D. degree in Computer Science from the City University of Hong Kong. He is currently a full professor at Beijing Normal University. Prof. Wang is the top 2% scientist according to "World's Top 2% Scientists 2021," published by Stanford University. He was supported by the "Hundred-Thousand-Ten Talent Project" and the Science Fund for Distinguished Young Scholars of Fujian Province. His research covers a wide range of topics, including the Internet of Things, Edge Computing, Mobile Computing. He has published over 200 papers in reputed high-level journals and conferences, including 30 IEEE/ACM Transactions papers. He has more than 8000 citations (H-Index is 49), according to Google Scholar.

Invited Speaker 10: Prof. Sancheng Peng, Guangdong University of Foreign Studies

Title: Deep Broad Learning for Cross-Domain Emotion Classification

Chair: Prof. Tao Peng, Guangzhou University, China

Abstract: Cross-domain emotion classification aims to leverage useful information in a source domain to help predict emotion polarity in a target domain in a unsupervised or semi-supervised manner. In this talk, we provide an overview on the different methods for cross-domain emotion classification. Then, we will discuss how to combine the advantages of deep learning and broad learning to conduct single-source and multi-source cross-domain emotion classification, respectively. Finally, we will provide the analysis for experimental results.

Short-Bio: Sancheng Peng received the PhD degree in computer science in 2010 from Central South University, China. He is a Professor of Guangdong University of Foreign Studies, China. He was a Research Associate of City University of Hong Kong from 2008 to 2009. He has authored or coauthored over 60 technical papers in both journals and conferences, such as the IEEE Communications Surveys and Tutorials, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Dependable and Secure Computing, IEEE Wireless Communications, IEEE Network, IEEE Internet of Things Journal, Journal of Network and Computer Applications, Computer Networks, Computer and Security, Information Sciences, Future Generation Computer Sciences, Journal of Computer and System Sciences, Journal of Computer Science and Technology, IEEE TrustCom, IEEE CBD, ICA3PP, SpaCCS, and EUC. His research interests include network and information security, natural language processing, social networks, and mobile computing. Dr. Peng has served as the Guest Editor of Future Generation Computer Systems and as a PC member for various prestige international conferences. He is a Senior Member of the CCF and a member of ACM.

Invited Speaker 11: Dr. Qiang Zhang, Nanchang Municipality

Title: The Development Trends and Example of Smart Cities

Chair: Prof. Tao Peng, Guangzhou University, China

Abstract: A smart city focuses on innovation and integrates information and communication technologies into a comprehensive development strategy geared toward transforming urban development. Additionally, the new smart city promotes the happiness and satisfaction of its inhabitants in order to promote a new path and new model for sustainable urbanization. The National Fourteenth FiveYear Plan proposes to "accelerate digital development and build a digital China" and "enable more people to enjoy a higher-quality urban life" and requires "building smart cities and digital villages" and "overall improvement of urban quality" and to provide guidelines for the development of a new type of smart city in the new era. As a starting point for this report, let's look at the development trends in smart cities, highlight the hot spots of research in smart cities, using the phased results of the smart city construction in Nanchang as an example to intuitively illustrate the current development trend of smart cities.

Short-Bio: Qiang Zhang received the B.S. degree from Central South University, China in 2011, and the M.S. degree from University of Chinese Academy of Sciences, China, in 2014. and the Ph.D degree from Central South University, China, in 2019. Now, he is a section chief of Big Data Development Administration of Nanchang Municipality. He was a visiting Ph.D. student in the Department of Electrical and Computer Engineering, University of Waterloo, Canada. His research interests include privacy preserving, cloud computing and information retrieval.

Invited Speaker 12: Dr. Yinglong Dai, Hunan Narmal University

Title: Hierarchical Deep Reinforcement Learning with State and Action

Chair: Prof. Tao Peng, Guangzhou University, China

Abstract: Deep reinforcement learning (DRL) is a powerful tool to solve the problems of high-dimensional data perception and complex dynamic decision-making. However, DRL methods still face challenges when the combinatorial state-action space becomes excessively large, such as real-world environments and non-stationary environments. Hierarchical reinforcement learning (HRL) is an effective approach to resolve the scalability challenges by decomposing a complicated task into relatively simple tasks. How to build the hierarchical structure of an agent's decision-making process becomes a main problem of hierarchical DRL methods. To improve the training efficiency and the model interpretability, we propose to use the conceptual embedding techniques to build the hierarchical structure, in which we introduce prior knowledge explicitly and restrict the exploration space reasonably. We split the DRL policy into two main functional modules. One is the recognition module that is used to recognize the latent state of the environment by the high-dimensional observation data. The state representation space of the recognition module forms a hierarchy by aggregating similar observation features to different levels. Another is the decision module that is used to plan action strategies according to the latent state of the environment. The decision module forms a hierarchy by decomposing the ultimate goal into sub-goals. In this way, the policy of the DRL agent would have a clear inference pipeline, in which we can incorporate prior knowledge into the deep model and improve the model interpretability.

Short-Bio: Yinglong Dai received B.S. and M.S. degrees in automation and control theory & control engineering from Northeastern University, China, in 2010 and 2012, respectively. He received a Ph.D. degree in computer science from Central South University, China, in 2018. From 2012 to 2013, he was an Electronic Engineer with the Research Institute of Intelligent Engineering, Sany Heavy Industry, Changsha, China. At present, he is a lecturer with College of Information Science and Engineering, Hunan Normal University, Changsha, China. His research interests include multimodal deep learning, deep reinforcement learning, healthcare, and multi-agent systems. At present, he has published over ten SCI/EI papers (https://www.researchgate.net/profile/Yinglong_Dai).

Invited Speaker 13: Prof. Shaobo Zhang, Hunan University of Science and Technology

Title: Research on Multi-Dimensional User Privacy Protection for Large-Scale Mobile Social Networks on Edge Computing

Chair: Prof. Tao Peng, Guangzhou University, China

Abstract: The user's privacy risks and query efficiency issues that exist in the mobile social network query process have received extensive attention from the academic community. Due to the large scale, diversity and high speed of large-scale mobile social networks, traditional user privacy protection schemes lack dynamic privacy and only have a single protection goal, which is difficult to support the personalized privacy protection and efficient query needs of large-scale mobile social network users. The speaker first considers the increasingly complex cloud computing environment and massive dynamic big data as new challenges to user privacy query services based on large-scale mobile social networks, based on the existing cloud computing, edge computing model is introduced, and it performs hierarchical processing, storage and protection of large-scale mobile social network user data. Then, according to the personalized and differentiated privacy protection needs of users in different query processes, from the user location privacy, query privacy and attribute privacy three dimensions to protect user privacy, build a multidimensional privacy protection system for users of large-scale mobile social networks oriented to edge computing, so as to provide secure, efficient and flexible query services for large-scale mobile social network users in the cloud-side collaborative environment.

Short-Bio: Shaobo Zhang received the B.S. and M.S. degree in Computer Science both from University of Science and Technology, Xiangtan, China, in 2003 and 2009 respectively, and received the Ph.D. in Computer Science in 2017 from Central South University, China. Now, he is an Associate Professor in the School of Computer Science and Engineering at Hunan University of Science and Technology, China. His research interests include security and privacy issues in cloud computing, social networks and big data. He has published more than 60 papers in IEEE IOT Journal, Information Sciences, FGCS and other journals and international conferences. Dr. Zhang is a Member of the CCF.

Invited Speaker 14: Dr. Lei Zhou, Southern University of Science and Technology

Title: Study on Hardware-assisted Trusted Execution Environment in x86 Platform

Chair: Prof. Guojun Wang, Guangzhou University, China

Abstract: Trusted Execution Environments (TEEs) have been widely adopted in commodity systems for enhancing the security of software execution. The examples of TEE technologies from COTS in x86 platform include but not limited to: Intel Software Guard eXtensions (SGX), AMD Memory Encryption Technologies, x86 System Management Mode, AMD Platform Secure Processor, and Intel Management Engine (ME). However, the users are difficult to access the TEE directly due to the isolation and close source. We study those existing hardware features in the x86 Platform (CPU, chipset), learn the debugging approaches to understand those technologies even lack of datasheets. Finally, we can leverage those to construct the hardware-assisted trusted execution environment, introducing a minimal TCB and incurring negligible overhead on the host system.

Short-Bio: Lei Zhou received the PhD degree in Computer Science from Central South University. He is a Post-doctoral Fellow in the Department of Computer Science and Engineering at Southern University of Science and Technology (SUSTech). He has been a Visiting Student at Wayne State University, USA. His primary research interests are in the areas of x86 systems security, including trustworthy execution, hardware-assisted security, and memory forensics.

Invited Speaker 15: Prof. Wenjun Jiang, Hunan University

Title: Recommendation Technique for Social Good: Reflections and Practice

Chair: Prof. Guojun Wang, Guangzhou University, China

Abstract: Personalized recommendation is the key technology to solve the information overload of online system and improve the online user experience. However, existing works usually focus on improving the recommendation accuracy, leading to several issues such as the "Filter Bubble", "Information Cocoon", "Echo Chamber", as well as the decrease of satisfaction and the long tail effect of the platform. Then, we need to pay more attention to improve recommendation and exploit it to promote user growth and social development. In this talk, I will share some reflections on "Recommendation Technique for Social Good." I will also share some of our recent works on that, including serendipity recommendation, recommendation for online learning, and product review analysis for recommendation (e.g., spam detection and helpfulness evaluation).

Short-Bio: Wenjun Jiang received her Bachelor's degree in Computer Science from Hunan University, P. R. China, in 2004, Master's degree in Computer Software and Theory from Huazhong University of Science and Technology, P. R. China, in 2007, and Doctor's degree in Computer Software and Theory from Central South University, P. R. China, in 2014. She has been a visiting Ph. D student at Temple University for two years. After graduation, she was an assistant professor in Hunan University. Since January 2017, she is an associate professor and a Doctoral Supervisor in Hunan University. Her research interests include social network analysis, recommendation systems, and smart education and learning optimization. She has published more than 40 technical papers in the above areas, including top international journals like ACM CSUR, IEEE TC, IEEE TPDS, ACM TKDD, ACM TOIT, ACM TWeb and top international conferences like WWW, INFOCOM, AAAI, CIKM. Her research is supported by Key Project of the National Natural Science Foundation of China, National Natural Science Foundation of China, National Natural Science Foundation of Hunan Province, Open project of Zhejiang Lab, and Science and technology program of Changsha city. Dr. Jiang is a Senior Member of CCF, and Member of the IEEE and ACM.

Invited Speaker 16: Prof. Yang Xu, Hunan University

Title: Blockchain-empowered Secure Data Sharing and Privacy Leakage Accountability Mechanism

Chair: Prof. Guojun Wang, Guangzhou University, China

Abstract: Data is an extremely important asset of the Internet ecosystem. As one of the basic services of the Internet, data sharing is widely used to help users make full use of data resources and avoid repeated collection. However, shared data faces the tampering risk in this open environment. Due to malicious attacks or sharer's unintentional mistakes, the data obtained by consumers may be inconsistent with their expectations. Besides, the illegal dissemination of shared data, such as information leaks and piracy, also discourages providers to share their data. Tracking down the sources of leaks in an open network becomes quite a daunting task. The existing leakage traceability schemes are difficult to use due to the lack of Trusted Third Party (TTP) and unaffordable overhead in practice. Fortunately, the emergence of blockchains has made it possible to mitigate these problems. In this talk, we introduce a blockchain-empowered secure data sharing and privacy leakage accountability mechanism which has been applied to digital content sharing scenarios. In our approach, similarity hashing and asymmetric fingerprinting are used to ensure the correctness and traceability of data. Blockchain is utilized as a self-recording channel for achieving non-repudiation evidence of service interactions and a distributed content verifier. We also design a blockchain-based interactive protocol to achieve secure data sharing. According to these on-chain records, smart contracts can automatically trace the leakers and carry out corresponding punishments. We believe our mechanism can provide comprehensive protection for both content providers and consumers.

Short-Bio: Yang Xu received the Ph.D. degree in Computer Science and Technology from Central South University, China. From 2012 to 2013, he was a Software Engineer in Intel Cooperation (Asia Pacific R&D Center). From 2015 to 2017, he was a Visiting Scholar in the Department of Computer Science and Engineering at Texas A&M University, USA. He is currently an Associate Professor and Deputy Director of the Department of Cyberspace Security at the College of Computer Science and Electronic Engineering, Hunan University, China. His research interests include, cloud computing, blockchain, artificial intelligence, and privacy computing. His research is supported by the National Natural Science Foundation of China, the Natural Science Foundation of Hunan Province, etc. He has published over 50 articles in international journals and conferences, including IEEE IoTJ, TSC, TII, TCC, TETC, TCBB, TNSE, etc. He was the awardee of the Best Paper Award of IEEE International Conference on Internet of People (IoP 2018). He serves/has served as a Program Committee Chair for UbiSec 2021 and IWCSS 2020, a Track Chair for IEEE CyberSciTech 2020, the Publicity Chair for CPSCom 2020, Blocksys 2020, ISSR 2019, Ubisafe 2019, and a reviewer for over 20 international journal/conference proceedings. He is a member of Blockchain Technical Committee of China Computer Federation (CCF) and China Society for Industrial and Applied Mathematics (CSIAM), and a member of IEEE and ACM.

SESSIONS AND PAPERS IN UbiSec 2021

The 1st International Conference on Ubiquitous Security (UbiSec 2021)

Session UbiSec-1: 13:30-16:30, December 29 (Wednesday), Room 1
Chair: Peiqiang Li, Guangzhou University, China

Skill Reward for Deep Reinforcement Learning
Jiangchang Cheng, Fumin Yu, Hongliang Zhang and Yinglong Dai

Privacy-Preserving Cluster Validity
Peng Yang, Shaohong Zhang and Liu Yang

Reliable and Controllable Data Sharing Based on Blockchain
Yipeng Zou, Tao Peng, Wentao Zhong, Kejian Guan and Guojun Wang

A backdoor embedding method for backdoor detection in deep neural networks
Meirong Liu, Hong Zheng, Qin Liu, Xiaofei Xing and Yinglong Dai

Research on Bandwidth Reservation Algorithm of Teaching Resources in Cloud Computing Environment
Hongling Chen, Zhiwen Liao and Qin Liu

Security and Privacy for Sharing Electronic Medical Records Based on Blockchain and Federated Learning
Wei Liu, Wenlong Feng, Benguo Yu and Tao Peng

Electronic Medical Cloud System Based on Role and Attribute Access Control
Shaobo Zhang, Shuo Yang, Gengming Zhu, Entao Luo, Jiyong Zhang, Desheng Xiang

Active Malicious Accounts Detection with Multimodal Fusion Machine Learning Algorithm
Yuting Tang, Dafang Zhang, Wei Liang, Kuan-Ching Li and Nitin Sukhija

Evaluation of an Anomaly Detector for Routers using Parameterizable Malware in an IoT Ecosystem
John Carter and Spiros Mancoridis

Session UbiSec-2: 16:30-20:30, December 29 (Wednesday), Room 1
Chair: Guanghui Feng, Guangzhou University, China

Smart Search over Encrypted Educational Resources in Cloud Storage
Qiang Zhang, Guihua Duan and Shukun Liu

Towards a Location-Aware Blockchain-Based Solution to Distinguish Fake News in Social Media
Wahid Sadique Koly, Abu Kaisar Jamil, Mohammad Shahriar Rahman, Hanif Bhuiyan, Md Zakirul Alam Bhuiyan and Abdullah Al Omar

Privacy-Enhanced Mean-Variance Scheme Against Malicious Signature Attacks in Smart Grids
Yuzhu Wang and Mingwu Zhang

A Large-Scale Study on the Security Vulnerabilities of Cloud Deployments
Iosif Andrei-Cristian, Tiago Espinha Gasiba, Tiange Zhao, Ulrike Lechner and Maria Pinto-Albuquerque

Generalizing Supervised Learning for Intrusion Detection in IoT Mesh Networks
Hossein Keipour, Thiemo Voigt, Niclas Finne and Saptarshi Hazra

An Intrusion Detection System Based on Deep Neural Network and Incremental Learning for In-Vehicle CAN Networks
Jiaying Lin, Yehua Wei, Wenjia Li and Jing Long

A Supervised Rare Anomaly Detection Technique via Cooperative Co-Evolution-Based Feature Selection using Benchmark UNSW_NB15 Dataset
A. N. M. Bazlur Rashid, Mohiuddin Ahmed and Sheikh Rabiul Islam

Towards Evaluating the Effectiveness of Botnet Detection Techniques
Ashley Woodiss-Field, Mike Johnstone and Paul Haskell-Dowland

A Reverse Auction Based Efficient D2D Transmission Mechanism for Ubiquitous Power Terminals
Xingshen Wei, Yongjian Cao, Peng Gao and Junxian Xu

A Fine-tuning Strategy Based on Real Scenes in Gait Identification
Xianggang Zhang, Jing Zeng and Guoyu Wang

An Online Automated Anti-Anti-Virus Method
Li Ma, Huihong Yang, Yiming Chai, Jiawen Fan and Wenyin Yang

Session UbiSec-3: 9:20-12:20, December 30 (Thursday), Room 2
Chair: Wei Yang, Guangzhou University, China

Trustworthy and Protected Data Collection in Cloud-Assisted IoT: The Case of Smart Home Event Monitoring
Hafiz Ur Rahman, Guojun Wang, Md Zakirul Alam Bhuiyan, Jianer Chen and Pin Liu

PUFloc: PUF and Location Based Hierarchical Mutual Authentication Protocol for Surveillance Drone Networks
Aiswarya S Nair and Sabu M Thampi

SDGen: A Scalable, Reproducible and Flexible Approach to Generate Real World Cyber Security Datasets
Abigail Koay, Miao Xie, Ryan Ko, Charles Sterner, Taejun Choi and Naipeng Dong

Using Streaming Data Algorithm for Intrusion Detection on the Vehicular Controller Area Network
Shaila Sharmin, Hafizah Mansor, Andi Fitriah Abdul Kadir and Normaziah A. Aziz

Design & Architecture of Progger 3: A Low-Overhead, Tamper-Proof Provenance System
Tristan Corrick and Vimal Kumar

An Edge-Cloud Collaborative Object Detection System

Online Conferencing

We will use Tencent Meeting & VooV Meeting (https://voovmeeting.com/) for online conferencing. Please download and install Tencent Meeting & VooV Meeting (Client) in advance.

Table. 1 Information of online conferencing

Time (BJT)	Conference	Tencent Meeting Links	#Tencent Meeting
Dec. 29 08:30 - 12:05	UbiSec 2021 Opening Ceremony and Keynote Speeches (1-4)	https://meeting.tencent.com/dm/sMOaFvLuQ6Mu	512-973-030
Dec. 29 13:30 - 20:30	UbiSec-1, UbiSec-2	https://meeting.tencent.com/dm/baUTMpg3RMLH	158-526-053
Dec. 30 8:30 - 12:20	UbiSec 2021 Keynote Speech (5), UbiSec-3	https://meeting.tencent.com/dm/72dtFWQSqqYE	405-857-589
Dec. 30 8:40 - 11:40	Invited Talks (1-4)	https://meeting.tencent.com/dm/CzMYD2cRGmM4	658-447-850
Dec. 30 14:00 - 17:30	Invited Talks (5-8)	https://meeting.tencent.com/dm/ReSMUNGyrWcg	980-526-304
Dec. 31 8:30 - 12:10	Invited Talks (9-13)	https://meeting.tencent.com/dm/XG4pKvBP06SG	661-719-037
Dec. 31 14:00 - 17:30	Invited Talks (14-16), Discussion	https://meeting.tencent.com/dm/pdgobYrwl2EQ	736-410-807

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Sascha Hauke, HAW Landshut, Germany
Hai Jiang, Arkansas State Unviersity, United States
Gyanendra Prasad Joshi, Sejong University, South Korea
Ashad Kabir, Charles Sturt University, Australia
Vana Kalogeraki, Athens University of Economics and Business, Greece
Waqas Khalid, Korea University Sejong, South Korea
Konstantinos Kolias, University of Idaho, United States
Miroslaw Kutylowski, Wroclaw University of Science and Technology, Poland
Ruixuan Li, Huazhong University of Science and Technology, China
Xin Li, Nanjing University of Aeronautics and Astronautics, China
Dongxi Liu, CSIRO, Australia
Changqing Luo, Virginia Commonwealth University, United States
Yuxiang Ma, Henan University, China
Juan Pedro Munoz-Gea, Universidad Politécnica de Cartagena, Spain
Anand Nayyar, Duy Tan University, Viet Nam
Zhan Qin, Zhejiang University, China
Manuel Roveri, Politecnico di Milano, Italy
Ricardo Seguel, Universidad Adolfo Ibañez, Chile
Jaydip Sen, Praxis Business School, Kolkata, India
Rakesh Shrestha, Yonsei University, South Korea
Junggab Son, Kennesaw State University, United States
Zhiyuan Tan, Edinburgh Napier University, United Kingdom
Muhmamad Imran Tariq, Superior University Lahore, Pakistan
Xiuhua Wang, Huazhong University of Science and Technology, China
Yunsheng Wang, Kettering University, United States

Lei Xu, University of Texas Rio Grande Valley, United States
Shuhui Yang, Purdue University Northwest, United States
Xuanxia Yao, University of Science and Technology Beijing, China
Ji Zhang, University of Southern Queensland, Australia
Youwen Zhu, Nanjing University of Aeronautics and Astronautics, China

Track3: Cyberspace Anonymity

Track Chairs
Tian Wang, Beijing Normal University & UIC, China
Sergio Duarte Correia, Instituto Politecnico de Portalegre, Portugal
Dragan Perakovic, University of Zagreb, Croatia
Avinash Srinivasan, TDI Technologies, USA
A. S. M. Kayes, La Trobe University, Australia

Program Committee Members
Hamid Ali Abed AL-Asadi, Iraq University College, Iraq
Selcuk Baktir, American University of the Middle East, Kuwait
Fu Chen, Central University of Finance and Economics, China
Honglong Chen, China University of Petroleum, China
Ivan Cvitic, University of Zagreb, Croatia
Ke Gu, Changsha University of Science and Technology, China
Hasan Jamil, University of Idaho, United States
Aleksandar Jevremovic, Singidunum University, Serbia
Frank Jiang, Deakin Univerwity, Australia
Marko Krstic, Algolysis Ltd, Cyprus
Maryline Laurent, Telecom SudParis, Institut Polytechnique de Paris, France
Masahiro Mambo, Kanazawa University, Japan
Massimo Mecella, Sapienza University of Rome, Italy
Jose Andre Morales, Carnegie Mellon University, United States
Klimis Ntalianis, University of West Attica, Greece
Hao Peng, Zhejiang Normal University, China
Dapeng Qu, Liaoning University, China
Imed Romdhani, Edinburgh Napier University, United Kingdom
Zeyu Sun, Luoyang Institute of Science and Technology, China
Henry Tufo, University of Colorado Boulder, United States
Hongzhi Wang, Harbin Institute of Technology, China
Sherali Zeadally, University of Kentucky, United States, United States
Chunsheng Zhu, The University of British Columbia, Canada

Conference Venue

The University Town International Hotel, Guangzhou, China

（广州华工大学城中心酒店）

http://www.scu-hotel.com/

Address: No.68 Huagong North Road, Guangzhou, Guangdong, China (Metro Line 7, Higher Education Mega Center South Station, Exit C)

Reservation Tel: 400-816-9266

Public Transportation

(1) From Guangzhou Baiyun International Airport （IATA code: CAN): Take a taxi (around 90km); or first take the Metro Line #3 at Airport Nouth or Airport South Station, then transfer to Line #5 at Zhujiang New Town Station (bound for Wenchong Station), transfer to Line #4 at Chebeinan Station (bound for Nansha Passenger Port Station), and take off at Higher Education Mega Center South Station, Exit C, then take a taxi (around 6mins) to the hotel, taking about 105 mins for the entire trip; Similar for the return trip.

广州白云国际机场出发：大约 55 公里，在地铁 3 号线北延段（体育西路方向）"机场北"或"机场南"站上车，到"珠江新城"换乘 5 号线（文冲方向），到"车陂南"站再换乘地铁 4 号线（南沙客运港方向），到"大学城南"站 C 出口，出站乘坐的士（约 6 分钟）到酒店，全程约 105 分钟；返程类似。

(2) From Guangzhou Railway Station: Take a taxi (around 28km); or first take the Metro Line #5 at Guangzhou Railway Station (bound for Wenchong Station), then transfer to Line #4 at Chebeinan Station (bound for Nansha Passenger Port Station) and take off at Higher Education Mega Center South Station, Exit C, then take a taxi (around 6mins) to the hotel, taking about 70 mins for the entire trip; Similar for the return trip.

广州火车站出发：大约 28 公里，在地铁 5 号线（文冲方向）"广州火车站"站上车，到"车陂南"站再换乘地铁 4 号线（南沙客运港方向），到"大学城南"站 C 出口，出站乘坐的士（约 6 分钟）到酒店；返程类似。

(3) From Guangzhou South Railway Station: Take a taxi (around 30km); or take the Metro Line #7 at Guangzhou South Railway Station (bound for Higher Education Mega Center South Station), take off at Higher Education Mega Center South Station, Exit C, then take a taxi (around 6mins) to the hotel, taking about 60 mins for the entire trip; Similar for the return trip.

广州南高铁站出发：大约 30 公里，在地铁 7 号线（大学城南方向）"广州南站"站上车，乘坐到终点站"大学城南"站下车，从 C 出口出站，乘坐的士（约 6 分钟）到酒店；返程类似。

Introduction to Guangzhou University

Guangzhou University is a comprehensive university named after "Guangzhou", an important national central city. Established in 2000, it has the legacy of schooling for more than 90 years. Seizing the historical opportunity of national promotion of "double first-class" construction and provincial and municipal construction of high-level university, the University adheres to be oriented to international academic frontiers, adapts to the needs of national major strategies, and national and regional economic and social needs, actively docks with the construction, innovation and opening of Guangdong-Hong Kong-Macao Greater Bay Area, focuses on new engineering, new teacher's ethics and new arts construction, all according to the development concepts of connotation construction, innovation-driven, characteristic development and open education, and takes initiative to explore new medical development, and it is a high-level university appointed for the construction of key disciplines in Guangdong Province and a university for the construction of high-level university in Guangzhou City.

The University has three campuses in Guangzhou Higher Education Mega Center (HEMC), Guihuagang and Huangpu Graduate School of Guangzhou University respectively, including 30250 full-time undergraduate students and 6951 students of master and doctoral programs. The University has a full range of comprehensive disciplines, with 24 professional colleges, covering ten disciplines including Philosophy, Economics, Law, Education, Literature, History, Science, Engineering, Management and Art. It has 10 doctoral programs in the first-level discipline and doctoral degree programs, 4 post-doctoral research stations, 36 master's degree programs in the first-level discipline, and 27 master's degree programs. In 2021, it has 71 undergraduate enrollment majors, including 39 science-and-engineering majors, 24 humanities and social sciences majors, and 8 arts majors.

The University insists on the construction relying upon talents, and through both cultivation and introduction of talents, it has basically formed a team of high-quality faculty with noble ethics, reasonable structure, superb academic skills and full of vitality. At present, the University has 3286 teaching and administrative staffs, including 2444 professional and technical personnel and 2016 full-time teaching and research personnel, 1252 of full-time teaching and research personnel have been employed for professional and technical positions higher than associate senior titles, and 1430 doctoral degree holders. Currently, there are 4 full time academicians of CAS and CAE, 1 full time foreign academician, 5 distinguished academicians, 4 dual-employed academicians, 1 member of International Academy of Astronautics and 1 member of International Eurasian Academy of Sciences; 1 foreign academician of Russian Academy of Natural Sciences; 1 national famous teacher; 4 specially invited professors and 2 young scholars of the National Major Talents Program of the Ministry of Education; 2 Young Scholars; 11 overseas high-level talents introduction Program; 9 candidates of NSFC Outstanding Youth Science Fund, 7 candidates of NSFC Excellent Youth Science Fund; 13 candidates of the New Century National Hundred, Thousand and Ten Thousand Talent

Project; 12 national middle-aged and young experts with outstanding contributions; 8 leading talents of the National High-level Talents Special Support Program; 1 famous teacher; 1 youth top talent; 36 experts receiving State Council Special Allowance; 4 cultural masters and "Four Batches" Talents Project of the Publicity Department of the CPC Central Committee, 23 candidates of New Century Excellent Talents Support Program of the Ministry of Education; "1 innovation team of "Pearl River Talents Program", 1 leading talent of "Pearl River Talents Program", 5 youth top talents, 6 leading talents of "Guangdong Special Support Program for Talent Young Scholars", 1 youth top talent, 4 famous teachers; 7 distinguished professors and 2 chair professors as Pear River Scholars, and 10 young Pearl River Scholars; 11 candidates of Guangdong Natural Science Funds for Distinguished Young Scholars; and 190 Guangzhou high-level talents (including Guangzhou outstanding experts, excellent experts, outstanding young reserve talents).

The University adheres to be oriented to major needs, and through continuously restructuring and optimizing the structure of discipline, deepens the connotation construction of superiority disciplines in humanities, social science and sciences, strengthens the construction of pedagogical education and characteristic arts disciplines, highlights the construction of new engineering oriented to the needs of the new technology and high-tech industries, explores development of new medicine in biomedicine, gene editing, biological information and brain science with emphasis on the main direction. At present, it has formed a construction of system key disciplines consisting of four provincial "edging in first-class" key disciplines, 14 provincial key disciplines and 16 municipal key disciplines and key supporting disciplines. Its Engineering, Computer Science, Chemistry, Materials Science, General Environmental/ Ecological, Social Sciences, enter ESI Global Rankings Top 1%, among them, Engineering and Computer Science have entered the top 5‰. The university ranks No. 99 in the list of The Best Universities in China in 2021. The US. News 2021 World University Rankings ranks 706 in the world and 60 in Mainland China. It is ranked 601-800 in the world by The Times Higher Education World University Rankings 2022.

The University adheres to the fundamental task of moral education and character cultivation, maintains the central position of training undergraduate talents, takes as its objectives of training talents "having both ability and integrity, patriotism, broad vision, enthusiastic about sports, good taste of art appreciation, and strong ability development", sets up "culture, art, sports and language " four quality public education centers, and commits to cultivating innovative talents with extensive background. The University has 31 national first-class undergraduate major construction sites and 43 Guangdong first-class undergraduate major construction sites; 5 national-level characteristic specialties, 1 national-level comprehensive reform pilot major, 1 national-level talent cultivation model innovation experimental area, 1 national-level college student practice teaching base, 11 national-level excellent courses and national-level excellent open courses, 10 national first-class courses, 1 national-level teaching team and 45 provincial-level teaching teams; won 5 national teaching achievement awards and 53 provincial teaching achievement awards. Guangzhou University has achieved remarkable results

in the construction of "Golden Courses" system. Currently, it includes 3 state-level premium online open courses, 66 provincial-level premium courses, 171 university-level premium courses, and 200 courses interconnected with and mutually recognized by credits from high-level universities around the world. The University implements a new training model for top-notch talents and sets up 33 experimental classes for top-notch innovative talents. The "Creation, Innovation & Entrepreneurship Camp" space has been approved by the national mass innovation space. Our students' achievements in national innovation and entrepreneurship competitions such as "Internet +", "Challenge Cup" and "China College Students' Entrepreneurship Competition" rank among the top among universities in Guangdong and even similar universities in China. The employment quality of graduates has been steadily improving. The average first-time employment rate of undergraduates in the past three years is 90.9%, and the overall satisfaction rate of employers is 98.7%.

The University adheres to the strategy of scientific and technological innovation, orients to the main industrial, economic and social battlefields, strengthens the construction of scientific research and innovation capacity,   sets up the training base of high-level innovative talents and major scientific and technological innovation platform, and forms the development pattern of "one body two wings" in the innovation corridor of Guangzhou, Shenzhen, Hong Kong and Macao; sets up the Huangpu Research Institute/Graduate School to actively plan new developments in Nansha District. The University has 3 national scientific research platforms (including cultivation base) and 51 provincial and ministerial scientific research platforms. It has established scientific research teams in the fields of Earthquake Mitigation and Disaster Prevention in Urban Infrastructure and Security, Cyberspace Advanced Technology, Artificial Intelligence and Block Chain, Intelligent Manufacturing, Intelligent Equipment, Intelligent Transportation, Astrophysics, Analytical Science and Technology, Environmental Engineering, Clean Energy Materials, Applied Mathematics, Bio-computing, Molecular Genetics and Evolution, Gene Editing, Geographical Science, Lingnan Culture and Art, Regional Development and other fields. In 2020, the University invested RMB1.092 billion Yuan in scientific research. In the past three years, the number of projects undertaken by the National Social Science Fund and the number of projects undertaken by the National Natural Science Foundation of China ranks 30 and 80 respectively among universities in the country; it has been presided over a total of 12 national key research and development projects and topics. Since 2016, a total of 2297 international and domestic patents have been applied, and 1134 patents have been granted. It has been successively awarded the title of major holder of patents in Guangzhou. The quality of papers has been steadily improved, and the number of papers published in journals such as Science and Nature has been increasing. In 2020, the number of papers published on SCIE/SSCI and CSSCI has reached 2505. In the past five years, the University has won 101 national, provincial and ministerial technology and social science awards. It continues to deepen exchanges and cooperation with universities and enterprises in the Greater Bay Area, strengthen the in-depth integration of enterprises, universities and research institutes and the docking with venture capital, and promote the transformation

of scientific and technological achievements of "mass entrepreneurship and innovation" in the Greater Bay Area. Since 2016, the University has signed 151 industry-university-research cooperation agreements with local governments, enterprises and public institutions, added 46 industry-university-research cooperation platforms, joined 22 industry-university- research cooperation alliances, and built more than 50 R&D centers and 300 practice bases. The University has established partnership with Guangzhou Radio Group, Guangzhou Yuexiu Group, Guangdong Silk Textile Group, Guangzhou Intelligent Equipment Group, China Machinery Industry Group, Tencent Technology, Huawei, 360 Group, Ali Cloud Computing and nearly 100 other large enterprises. A number of innovative achievements, such as earthquake mitigation and disaster prevention, sound, image & lighting, cyber security and water environment technology, have been fully applied in major domestic projects or enterprises such as the Canton Tower and Hong Kong-Zhuhai-Macao Bridge. The role of the University in political advisory is becoming increasingly prominent, and a number of research reports have been adopted and applied.

The University adheres to the principle of open education. Relying on the international influence of Guangzhou as a major national central city, a comprehensive gateway city, the University focuses on the construction of the Greater Bay Area and the "Belt & Road" initiative, and constantly expands the pattern of international schooling. The University plans to establish the Hong Kong University of Science and Technology (Guangzhou) in cooperation with HKUST; the University initiated the establishment of the Alliance of Guangzhou International Sister-city Universities, which now has 13 member universities; the University has built cooperative relationships with nearly 200 universities and research institutes in 33 countries and regions, and established 15 international research collaboration platforms, such as International Research Center for Sino-Italia Historical Architectural and Cultural Heritage Conservation, Guangzhou University-Linkoping University Joint Research Center for Urban Sustainable Development, Guangzhou University-Keele University Joint Research Center for Gene Interference and Application and so on; the University has cooperated with University of California, San Diego, University of Washington, University of Heidelberg, University of British Columbia, University of Queensland, University of Western Australia, University of Padua and other world-famous universities to carry out overseas learning program for top-notch innovative talents and joint training of doctoral candidates. In the past three years, more than 3500 students have been selected and funded to study abroad. In addition, the University has jointly established Confucius Institute with Wesleyan College in the United States, University of Padua in Italy and Mazandaran University in Iran.

Stay learning and practicing, and keep pace with the times. Guangzhou University adheres to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, adheres to the direction of socialist education, roots in China, integrates Chinese and foreign, based on the times, and faces the future, strengthens services to build an innovative country, serves the Guangdong-Hong Kong-Macao Greater Bay Area strategy, and serves Guangzhou Responsible for the mission

of building a leading global city, constantly pursuing academic excellence, and cultivating high-quality innovative talents, and strives to build the University into a high-level university of in-depth fusion with urban development of Guangzhou, to bring out the best of the status of Guangzhou as a national central city, and highlight its specialty disciplines, urban regional and international characteristics.

广州大学简介

广州大学是以国家重要中心城市"广州"命名的综合性大学，于 2000 年合并组建，有着 90 多年的办学传统。学校紧紧抓住国家推进"双一流"建设、广东省和广州市高水平大学建设机遇，坚持"四个面向"（面向世界科技前沿、面向经济主战场、面向国家重大需求、面向人民生命健康），深化与广州和粤港澳大湾区"三个对接"（对接高质量发展、对接创新驱动、对接扩大开放），聚焦新工科、新师范、新文科建设，积极探索新医科发展，是广东省高水平大学建设计划重点建设高校、广州市高水平大学建设高校。

学校现有大学城、桂花岗、黄埔研究院/研究生院"一校三园"，在校全日制本科生 30250 人，硕士和博士研究生 6951 人。学校学科门类齐全、综合性强，设有 24 个专业学院，涵盖哲学、经济学、法学、教育学、文学、历史学、理学、工学、管理学、艺术学等十大学科门类。现有 10 个一级学科博士授权点和博士专业学位授权点，4 个博士后科研流动站，36 个学术型硕士学位授权点，27 个硕士专业学位授权点。2021 年本科招生专业 71 个，其中理工类专业 39 个、人文社科类专业 24 个、艺术类专业 8 个。

学校坚持人才强校，通过培育与引进并举，基本形成一支师德高尚、结构合理、学术精湛、充满活力的高素质师资队伍。学校现有在岗教职工 3286 人，其中专业技术人员 2444 人、专职教学科研人员 2016 人，专职教学科研人员中被聘为副高以上专业职务者 1252 人，具有博士学位人员 1430 人。现有全职两院院士 4 人、全职外国院士 1 人、特聘院士 5 人、双聘院士 4 人、国际宇航科学院院士 1 人、欧亚科学院院士 1 人、俄罗斯自然科学院外籍院士 1 人；国家级教学名师 1 人；教育部国家重大人才项目特聘教授 4 人、青年学者 2 人；国家海外高层次人才引进计划 11 人；国家自然科学基金杰出青年基金获得者 9 人、国家自然科学基金优秀青年基金获得者 7 人；入选国家百千万人才工程国家级人选 13 人；国家突出贡献中青年专家 12 人；国家高层次人才特殊支持计划领军人才 8 人、教学名师 1 人、青年拔尖人才 1 人；享受国务院政府特殊津贴专家 36 人；中宣部文化名家暨"四个一批"人才工程 4 人，教育部新世纪优秀人才 23 人；"珠江人才计划"创新团队 1 个，"珠江人才计划"领军人才 1 人、青年拔尖人才 5 人；"广东特支计划"领军人才 6 人、青年拔尖人才 1 人、教学名师 4 人；珠江学者特聘教授 7 人、讲座教授 2 人、青年珠江学者 10 人；广东省自然科学杰出青年基金 11 人；广州市高层次人才（含广州市杰出专家、优秀专家、青年后备人才）190 人。

学校坚持重大需求导向、一流建设、创新引领、特色发展、精准聚焦，按照"理厚工精、文优教特、交叉融合、创新发展"的学科建设思路，不断调整和优化学科和专业结构，深化人文、社会科学、理科类优势学科内涵建设，强化师范

教育、艺术类学科特色建设，面向新科技领域和高新技术产业需求的新工科建设，探索拓展以生物医药、基因编辑、生物信息、脑科学等为重点主攻方向的新医科。现已形成由大土木学科群、信息学科群、数字经济与管理学科群、物质科学与装备制造学科群等 4 个优势学科群辐射带动，6 个省高水平大学建设"冲一流"重点建设学科、14 个省级重点学科、16 个市级重点学科和重点扶持学科构成的重点建设学科体系。工程学、计算机科学、化学、材料科学、环境/生态学、社会科学总论等 6 个学科进入 ESI 全球前 1%，其中工程学、计算机科学已进入前 5‰。学校位列 2021 年软科中国最好大学排名第 99 位；US.News2021 世界大学排名位列世界大学第 706 位、中国内地高校第 60 位；在 2022 年泰晤士高等教育世界大学排名中位列全球高校第 601-800 位。

学校坚持立德树人根本任务，坚持本科人才培养中心地位，以"德才兼备、家国情怀、视野开阔，爱体育、懂艺术，能力发展性强"为人才培养目标，设立"文体艺语劳"五个公共素质教育中心，致力于培养具有广大底色的创新型人才。学校现有 31 个国家级一流本科专业建设点、43 个广东省一流本科专业建设点、5 个国家级特色专业、1 个国家级专业综合改革试点专业、1 个国家级人才培养模式创新实验区、1 个国家级大学生实践教学基地、11 门国家级精品课程和国家级精品开放课程、10 门国家级一流课程、1 个国家级教学团队、45 个省级教学团队；获 5 项国家级教学成果奖，53 项省级教学成果奖。广大"金课"体系建设成效显著，现有国家级一流本科课程 10 门、省级一流本科课程 44 门、省级系列精品课程 73 门，与世界高水平大学课程互联和学分互认的课程 200 门。实施拔尖人才培养新模式，组建 33 个拔尖创新人才实验班。"三创营"众创空间获批国家级众创空间，学生在"互联网+""挑战杯""创青春"等国家创新创业竞赛成绩位居广东高校乃至全国同类高校前列。毕业生就业质量稳步提升，近 3 年，本科生平均初次就业率为 90.9%，用人单位总体满意度 98.7%，95%以上扎根粤港澳大湾区。

学校坚持科技创新战略，面向产业和经济社会主战场，强化科研创新能力建设，重点布局"重大基础设施安全+智慧运维创新枢纽""网络空间信息+智能应用技术创新枢纽"等 2 个创新枢纽，新材料新装备新制造交叉创新等 6 个重大科技创新平台，在穗深港澳创新走廊上形成"一体两翼"发展格局，设立黄埔研究院/研究生院，积极谋划在南沙的新发展。现拥有国家级科研平台（含培育基地）3 个，省部级科研平台 51 个。在城市基础设施减震防灾与安全、网络空间先进技术、人工智能与区块链、智能制造、智能装备、智慧交通、天体物理、分析科学技术、环境工程、清洁能源材料、应用数学、生物计算、分子遗传与进化、生物计算、基因编辑、地理科学、岭南文化艺术、区域发展等领域组建了一批科研团队。2020 年全校科研经费投入 10.92 亿元。近 3 年承担国家社科基金项目数和国家自然科学基金项目数分别位列全国高校 30 位和 80 位左右；连续获主持国家重点研发项目与课题共 12 项。2016 年以来，共申请国际、国内专利 2297 项，授权

专利 1134 项，连续荣获广州市专利大户荣誉称号。论文质量稳步提升，发表在《Science》《Nature》等期刊上的论文数不断增加，学校 2020 年 SCIE/SSCI、CSSCI 发文量 2505 篇。近 5 年，学校获得国家、省部级科技和社科奖励 101 项。不断深化与粤港澳大湾区内的高校、企业间的交流与合作，加强产学研深度融合及与风投资本对接，促进"双创"科技成果在大湾区转化。2016 年以来，学校与地方政府和企事业单位签署产学研合作协议 151 项，新增产学研合作平台 46 个，加入产学研协同合作联盟 22 个，共建研发中心 50 多个、实习基地 300 多个。与广州无线电集团、广州越秀集团、广东丝绸纺织集团、广州智能装备集团、中国机械工业集团、腾讯科技、华为、360 集团、阿里云计算等近百家大型企业新建合作关系。减振抗震、声像灯光、网络安全和水环境技术等一批创新成果在广州塔、港珠澳大桥等国内重大工程或企业中得到充分应用。咨政建言作用日益凸显，一批研究报告得到采纳应用。

学校坚持开放办学，依托广州国家重要中心城市、综合性门户城市和粤港澳大湾区核心引擎的国际影响力，聚焦粤港澳大湾区建设和"一带一路"倡议，不断拓展国际化办学格局。与香港科技大学合作筹建香港科技大学（广州）；发起成立广州国际友城大学联盟，联盟成员大学 13 所；与 33 个国家和地区的近 200 所大学、科研院所建立了合作关系，成立了中意历史建筑与文化遗产保护国际研究中心、广州大学--林雪平大学城市可持续发展联合研究中心、广州大学--基尔大学基因干扰与应用联合研究中心等 15 个国际科研合作平台；与加州大学圣地亚哥分校、华盛顿大学、海德堡大学、英属哥伦比亚大学、昆士兰大学、西澳大学、帕多瓦大学等世界知名大学合作开展"拔尖创新人才境外学习"计划和博士生联合培养等项目。近 3 年，共选派资助 3500 余名学生出国交流学习。分别与美国卫斯理安学院、意大利帕多瓦大学、伊朗马赞德兰大学联合举办孔子学院。

博学笃行、与时俱进。广州大学坚持以习近平新时代中国特色社会主义思想为指导，坚持社会主义办学方向，扎根中国、融通中外、立足时代、面向未来，强化服务建设创新型国家、服务粤港澳大湾区战略、服务广州建设引领型全球城市的使命担当，不断追求学术卓越，培养高素质创新人才，为把学校建设成为与国家和粤港澳大湾区发展深度融合、广州城市地位相得益彰的中国特色社会主义一流创新型大学而努力奋斗！

Introduction to School of Computer Science and Cyber Engineering at Guangzhou University

School of Computer Science and Cyber Engineering, Guangzhou University was established in October 2007. The School consists of the Department of Computer Science, Department of Software Engineering, and the Department of Network Engineering, including 5 undergraduate programs of Computer Science and Technology, Network Engineering, Software Engineering, Cyberspace Security, and Artificial Intelligence, of which Computer Science and Technology is listed as the National First-Class Undergraduate Program construction station and national characteristic specialty; Software Engineering is listed as one of the National First-class Undergraduate Programs construction station. Network engineering was listed as the Provincial First-Class Specialty construction station; Cyberspace Security is the key priority discipline of Guangdong Province, the key construction discipline of "edging-in double first-class, improving shortcoming and strengthening characteristic specialty" high-level universities in Guangdong Province, and Computer Science and Technology is the key discipline appointed by Bureau of Education of Guangzhou Municipality; the School has a doctoral program in the first-level discipline of Cyberspace Security, a master's program in the first-level discipline of Cyberspace Security, two second-level master's programs in Curriculum and Teaching Theory and Educational Technology, and a professional degree program in Electronic Information (formerly known as Computer Technology).

The School of Computer Science and Cyber Engineering has a strong faculty and staff of 98, including 2 academicians of the Chinese Academy of Sciences and 1 academician of the Chinese Academy of Engineering, 1 Changjiang Scholar, 1 recipient of National Science Fund for Outstanding Young Scholar, 1 National Changjiang Young Scholar, 1 National Outstanding Young Scholar, 1 CAS Hundred Talents Program Expert, 2 Pearl River Scholars, 1 expert of Guangdong Special Support Program for Talent Young Scholars, and 4 State Council Special Allowance Experts. The School has 56 teachers holding Doctoral Degrees, 2126 undergraduate students and 510 graduate students.

The School has witnessed rapid development in recent years. Its Cyberspace Security ranks NO.4 among 2019 and 2020 Shanghai Ranking's Best China Disciplines, and its Computer Science enters ESI Global Rankings Top 5‰ in May 2020. The School has become the most active and potential training base for IT talents in South China, making great contributions to the national economic and social development.

广州大学计算机科学与网络工程学院简介

　　广州大学计算机科学与网络工程学院成立于 2007 年 10 月。学院设有计算机科学系、软件工程系、网络工程系，现有计算机科学与技术、网络工程、软件工程、网络空间安全、人工智能 5 个本科专业，其中计算机科学与技术入选国家级一流本科专业建设点、国家特色专业；软件工程专业入选国家级一流本科专业建设点；网络工程入选省级一流本科专业建设点；网络空间安全学科为广东省优势重点学科、广东省高水平大学"冲补强"重点建设学科，计算机科学与技术学科为广州市教育局重点学科；具有网络空间安全一级学科博士授权点、网络空间安全一级学科硕士授权点，课程与教学论、教育技术学两个二级学科硕士授权点，以及电子信息（原计算机技术）专业学位授权点。

　　学院师资力量雄厚，现有教职工 98 人，其中中国科学院院士 2 名、中国工程院院士 1 名、长江学者 1 名、国家杰青 1 名、国家青年长江 1 名、国家优青 1 名、中科院百人计划专家 1 名、珠江学者 2 名、省特支计划 1 名、享受国务院特殊津贴专家 4 名。学院具有博士学位教师 56 人。现有在校本科学生 2126 人，在校研究生 510 人。

　　学院近年来得到了飞速发展，网络空间安全学科在上海软科发布的"中国最好学科排名"中最近连续两年都排在全国第四名，计算机学科已于 2020 年 5 月进入 ESI 学科排名全球前 5‰。学院已经成为华南地区最活跃、最具发展潜力的 IT 类人才培养基地，为当地国民经济与社会发展做出了贡献。

Sponsors and Organizers