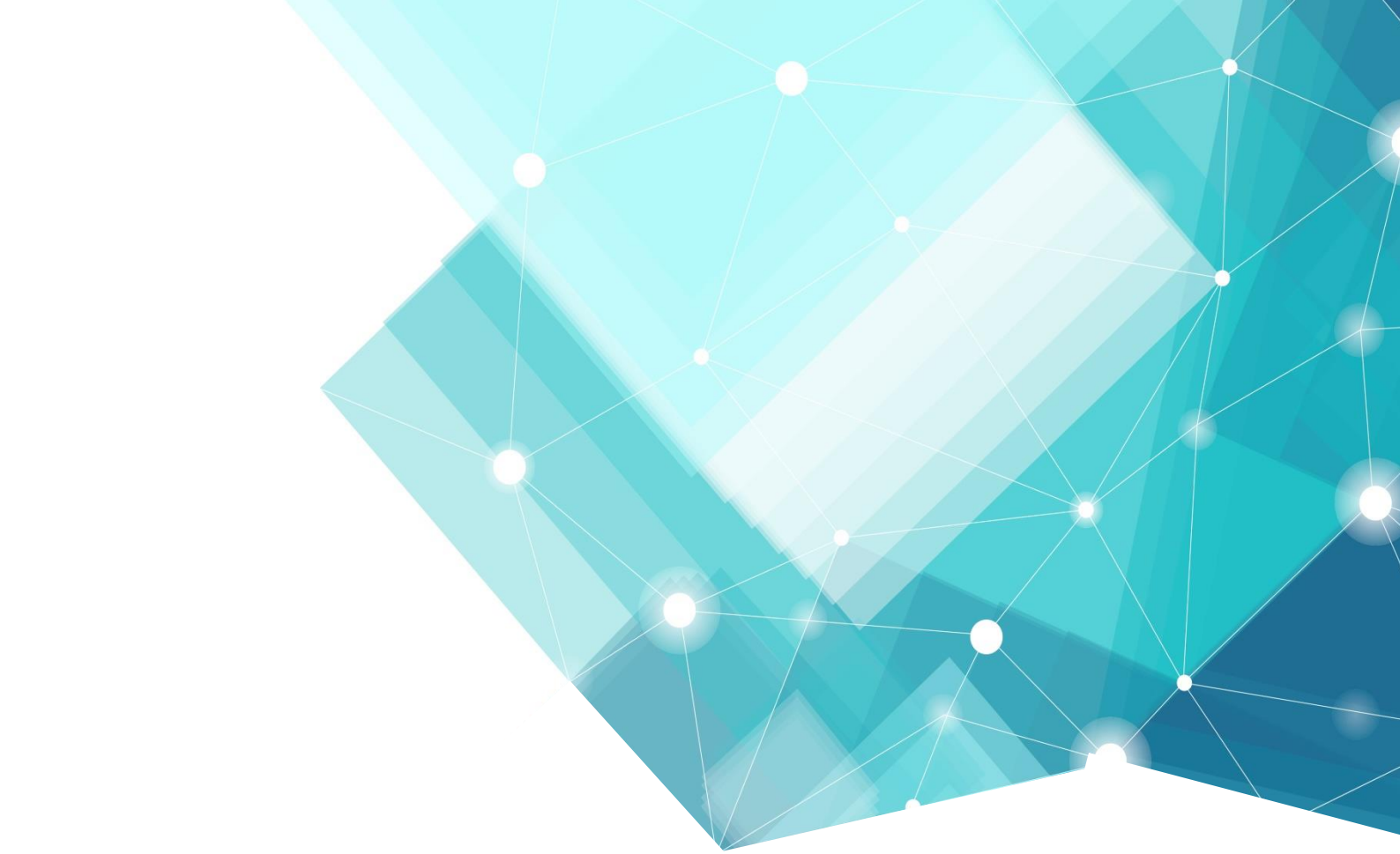

ICCSSE 2020

2020 IEEE 6th International Conference on Control Science and Systems Engineering

2020 第六届控制科学与系统工程国际会议

July 17-19, 2020 | Beijing, China

Beijing Time (UTC+8)

2020.7.17-19|中国北京

Conference Program

会议日程

www.iccsse.com

ACKNOWLEDGEMENTS 致谢

About ICCSSE 关于 ICCSSE

Following the success of ICCSSE 2014 in Yantai, China during December 29-30, 2014, ICCSSE 2016 in Singapore during July 27-29, ICCSSE 2017 in Beijing during August 17-19, ICCSSE 2018 in Wuhan during August 21-23, ICCSSE 2019 in Shanghai, China during August 14-16, 2019. ICCSSE2020 was scheduled in Beijing this year. Unfortunately, the entire world now is struggling against the virulent pandemic COVID-19. Today we are witnessing the unbounded global spread of the disease and each of us is affected. We hope all of you can stay healthy. Thus, the organizing committee of ICCSSE 2020 decided that the onsite presentation is totally replaced by the online presentation because the health and safety of our participants are our top priority. The conference is co-sponsored by IEEE and China Agricultural University, China, with support from Beijing Forestry University, Huazhong University of Science and Technology of China, Shanghai Jiaotong University, and etc.

Interests in control science and system engineering have been increasing and becoming important in this modern technicological age. This international conference allows the results of hard work and forward thinkers to be championed to our peers and the world. The depth of the research workspresented is even greater than those in the previous conferences. Plan now to be part of this exceptional conference, as an attendee, event sponsor, or exhibitor. ICCSSE 2020 is where you will meet and network with energy leaders, business innovators, researchers, academics and policy makers from across the globe.

继 ICCSSE 2014 于 12 月 29-30 日在山东烟台，ICCSSE 2016 于 7 月 27-29 日在新加坡, ICCSSE 2017 于 8 月 17-19 在北京, ICCSSE 2018 于 8 月 21-23 在武汉, ICCSSE 2019 于 8 月 14-16 日在上海成功召开后，ICCSSE2020 定于今年在北京举行。 不幸的是，现在全世界都在与 COVID-19 作斗争。我们目睹了这场疾病在全球范围内的无限蔓延，很多人都受到了影响。因此，ICCSSE 2020 组委会决定将现场演示完全替换为在线演示，因为参与者的健康和安全是我们的首要任务。本次大会由 IEEE 和中国农业大学联合主办，北京林业大学，华中科技大学，上海交通大学，等单位协办。

控制科学与系统工程研究正值黄金时期，ICCSSE 会议将为参会者营造国际一流的学术交流氛围和人脉圈。被本次会议接收并注册的全文将被出版，根据作者的意愿，不愿出版文章的作者可以提交摘要做口头报告或是注册成为听众参与到会议中来。本次会议将涵括分会讨论，邀请报告，大会报告，文章、摘要作者口头报告等。我们热忱的欢迎您报名参加！

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ICCSSE Conference

17-19, July, 2020

You are immensely welcome to attend the 2020 IEEE 6th International Conference on Control Science and Systems Engineering (ICCSSE). The conference focuses on the trending, highly popular, but exciting and extremely challenging areas from our keynote speakers of leading scientists and a variety of authors around the world. The outcome of our deliberations will play a crucial role in progress achieved in these areas. The conference was scheduled in Beijing this year. Unfortunately, the entire world now is struggling against the virulent pandemic COVID-19. Today we are witnessing the unbounded global spread of the disease and each of us is affected. We hope all of you can stay healthy. Thus, the organizing committee of ICCSSE 2020 decided that the onsite presentation is totally replaced by the online presentation because the health and safety of our participants are our top priority.

The conference brings together researchers looking for opportunities for conversations that cross the traditional discipline boundaries and allows them to resolve multidisciplinary challenging problems. It is the clear intent of the conference to offer excellent mentoring opportunities to participants. Although we cannot meet each other physically, through this online platform, we trust that you will still be able to share the state-of-the-art developments and the cutting-edge technologies in these broad areas.

We have the conference for three days. There will be over 70 oral presentations divided into 10 sessions, 3 keynote speakers and 2 invited speakers.

Special thanks are extended to our colleagues in program committee for their thorough reviews of all the submissions, which are vital to the success of the conference, and also to the members in the organizing committee and the volunteers who had dedicated their time and efforts in planning, promoting, organizing and helping the conference. Last but not least, our special thanks go to speakers as well as all the authors for contributing their latest researches to the conference.

In closing, we thank you for participating in ICCSSE 2020 and we hope you enjoy the next three days.

ICCSSE conference committee
6/28/2020

Day 1 July 17, 2020 | Friday	第 1 天 2020.7.17|周五
10:00-12:00	Test Session 1
	Test Session 2
14:00-15:00	Test Session 3
	Test Session 4
16:00-18:00	Test Session 5
16:00-17:00	Keynote/ Invited Speaker, Session Chair Test

Day 2 July 18, 2020 | Saturday	第 2 天 2020.7.18|周六
09:00-9:05	Opening Remarks
09:05-09:45	Keynote Speech 1
09:45-10:25	Keynote Speech 2
10:50-12:35	Session 1
	Session 2
14:00-14:40	Keynote Speech 3
14:40-15:00	Invited Speech 1
15:00-15:20	Invited Speech 2
15:55-17:40	Session 3
	Session 4

Meeting ID	
Test Session 1,3,5	622 4034 7357
Test Session 2,4	991 1775 6218
Keynote/ Invited Speaker, Session Chair Test	991 1775 6218
Q&A Room *The room is for technical problems solving, not for presentations (10:00-17:00)	645 4919 1086

Meeting ID	
Opening Remarks Keynote Speech 1,2,3, Speech 1,2	991 1775 6218
Session 1,3	645 4919 1086
Session 2,4	622 4034 7357
Q&A Room *The room is for technical problems solving, not for presentations (15:25-17:40)	991 1775 6218

Day 3 July 19, 2020 | Sunday	第 3 天 2020.7.19|周日
9:30-11:15	Session 5
	Session 6
13:00-14:45	Session 7
	Session 8
15:15-17:00	Session 9
	Session 10

Meeting ID	
Session 5,7,9	645 4919 1086
Session 6,8,10	622 4034 7357
Q&A Room *The room is for technical problems solving, not for presentations (9:30-17:00)	991 1775 6218

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Dr. Javad khamisabadi, Faculty of Management, Islamic Azad University, Iran
Dr. Hugo Miguel Silva, University of Minho Guimaraes, Portugal

Before the conference 会前指南

Time Zone 时区

Beijing Time (UTC+8) 北京时间（东八区）

You're suggested to set up the time on your computer in advance. 请提前在您的电脑上设置好时间

Platform: ZOOM 会议平台：ZOOM

Download 软件下载

www.zoom.com.cn/download

中文指导

http://iccsse.com/Zoom-manual-CN.pdf

Equipment Needed 所需设备

- A computer with internet connection and camera 带有互联网连接和摄像头的电脑
- Headphones 耳机

Environment Needed 所需环境

- A quiet place 安静的地方
- Stable internet connection 稳定的互联网连接
- Proper lighting and background 适当的照明和背景

Test Your Presentation 测试您的报告

Date: July 17, 2020 时间：2020 年 7 月 17 日

Prior to the formal meeting, presenters shall join the test room to ensure everything is on the right track. Please check your test time on this program. 在正式会议之前，演讲者应加入测试室测试电脑，网络，学会在线会议的基本操作，以确保报告能正常进行。 请在日程上查看您的测试时间。

Q&A Room 答疑房间

If you have any technical problems, please enter the Q&A room with the ID: 99117756218 during the conference.

https://zoom.com.cn/j/99117756218

During the conference 会场指南

Voice Control Rules 语音控制规则

- The host will mute all participants while entering the meeting. 主持人在进入会议时会将所有与会者静音
- The host will unmute the speakers' microphone when it is turn for his or her presentation. 演讲人在演讲时主持人将对他/她的麦克风解除静音
- Q&A goes after each speaker, the participant can raise hand for questions, the host will unmute the questioner. 每位演讲者都有问答环节，参与者可以举手提问，主持人将解除提问者的静音
- After Q&A, the host will mute all participants and welcome next speaker. 问答结束后，主持人将全员静音并欢迎下一位演讲者

Oral Presentation 口头报告

- Timing: a maximum of 15 minutes in total, including 3 minutes for Q&A. Please make sure your presentation is well timed. 时间安排：每个演讲者最多 15 分钟，其中 3 分钟用于问答。 请确保您的演讲在规划的时间内。
- It is suggested that the presenter email a copy of his/her video presentation to the conference email box as a backup in case any technical problem occurs. 为避免现场问题，建议演讲者通过电子邮件将自己的视频演示文稿的副本作为备份发送到会议邮箱。

***Conference Recording 会议记录**

The whole conference will be recorded. We appreciate you proper behavior and appearance. 整个会议将被记录。 请您注意适宜的举止和仪表。

* The recording will be used for conference program and paper publication requirements. The video recording will be destroyed after the conference and it cannot be distributed to or shared with anyone else, and it shall not be used for commercial nor illegal purpose. It will only be recorded by the staff and presenters have no rights to record. 记录将用于会议日程和论文发表要求。 会议结束后，视频记录将被销毁，并且不能与他人共享或分享，不得用于商业目的或非法目的。 它只能由工作人员记录，演示者无权记录。

Friday, July 17, 2020 周五 2020.7.17

Day 1

Test Sessions
Meeting Link: https://zoom.com.cn/j/62240347357
Meeting Link: https://zoom.com.cn/j/99117756218

10:00-12:00		
Test Session 1	SE0005 SE0006 SE0007 SE0009 SE0010 SE0013A SE0015 SE0017 SE0018 SE0019 SE0020 SE0025 SE0027 SE0028 SE0031 SE0032	**Meeting ID: 6**22 4034 7357
Test Session 2	SE0034 SE0036 SE0037 SE0039 SE0040 SE0042 SE0044 SE0046 SE0047 SE0048 SE0049 SE0050 SE0051 SE0061 SE0063 SE0065	**Meeting ID:** 991 1775 6218
14:00-15:00		
Test Session 3	SE5001 SE5002 SE5003 SE5004 SE5005 SE5006 SE5007 SE5008 SE5009 SE5010 SE5011	**Meeting ID:** 622 4034 7357
Test Session 4	SE5012 SE5013 SE5014 SE5015 SE5016 SE5017 SE5018 SE5019 SE5020 SE5021 SE5022	**Meeting ID:** 991 1775 6218
16:00-18:00		
Test Session 5	SE0067 SE0068 SE0069 SE0070 SE0071 SE0072 SE0073 SE0074 SE0075 SE0076 SE0077 SE0078 SE0079 SE0058 SE0059 SE0060	**Meeting ID:** 622 4034 7357
Keynote/ Invited Speaker, Session Chair Test		**Meeting ID:** 991 1775 6218

Saturday, July 18, 2020 周六 2020.7.18

Day 2

Morning- Keynote Speeches
Meeting ID: 991 17756218
Meeting Link: https://zoom.com.cn/j/99117756218

09:00-9:05

Opening Remarks	**Prof. Yifei Chen** **China Agricultural University, China**

09:05-09:45

Keynote Speech 1	*"Adaptive Event-Triggered Control of Multi-Agent Systems"* **Prof. Gang Feng, City University of Hong Kong** IEEE Fellow

09:45-10:25

Keynote Speech 2	*"Modeling and Control of Smart Actuators"* **Prof. Chun-Yi Su, Concordia University, Canada** 长江学者讲座教授

Morning- Oral Sessions
Meeting Link: https://zoom.com.cn/j/64549191086
Meeting Link: https://zoom.com.cn/j/62240347357

10:50-12:35

Session 1	*Computer Science and Image Processing* *计算机科学与图像处理*	**Meeting ID:** 645 4919 1086
Session 2	*Modern Information Theory and Technology* *现代信息理论与技术*	**Meeting ID:** 622 4034 7357

Saturday, July 18, 2020 周六 2020.7.18

Day 2

Afternoon- Keynote Speech + Invited Speeches
Meeting ID: 99117756218
Meeting Link: https://zoom.com.cn/j/99117756218

14:00-14:45	
Keynote Speech 3	*"New Approaches for Managing Logistic and Transportation Systems"* **Prof. Maria Pia Fanti, Polytechnic of Bari, Italy** IEEE Fellow
14:45-15:05	
Invited Speech 1	*"Adaptive Pose Control for Spacecraft Proximity Operations with Prescribed Performance Under Spatial Motion Constraints"* **Prof. Qinglei Hu, Beihang University, China**
14:45-15:05	
Invited Speech 2	*"Design and Accomplishment of AI Control Platform for Reactive Power Cloud Compensation System"* **Prof. Qingguang Yu, Tsinghua University, China**

Afternoon- Oral Sessions
Meeting Link: https://zoom.com.cn/j/64549191086
Meeting Link: https://zoom.com.cn/j/62240347357

15:55-17:40		
Session 3	*Data Analysis and Intelligent Computing* *数据分析与智能计算*	**Meeting ID:** 645 4919 1086
Session 4	*Electrical Engineering Theory and New Technology* *电工理论与新技术*	**Meeting ID:** 622 4034 7357

Sunday, July 19, 2020 周日 2020.7.19

Day 3

Morning - Oral Sessions
Meeting Link: https://zoom.com.cn/j/64549191086
Meeting Link: https://zoom.com.cn/j/62240347357

9:30-11:15

Session 5	*Computer and Information System* *计算机与信息系统*	**Meeting ID:** 645 4919 1086
Session 6	*Advanced Electronic Technology and Application* *先进电子技术及应用*	**Meeting ID:** 622 4034 7357

Afternoon - Oral Sessions
Meeting Link: https://zoom.com.cn/j/64549191086
Meeting Link: https://zoom.com.cn/j/62240347357

13:00-14:45

Session 7	*Power Electronics and Conversion Technology* *电力电子与变换技术*	**Meeting ID:** 645 4919 1086
Session 8	*Modern Power System Operation and Optimization* *现代电力系统运营与优化*	**Meeting ID:** 622 4034 7357

15:15-17:00

Session 9	*Aerospace Engineering and Control System* *航空航天工程与控制系统*	**Meeting ID:** 645 4919 1086
Session 10	*Control Theory and Control Engineering* *控制理论与控制工程*	**Meeting ID:** 622 4034 7357

OPENING REMARKS 开幕致辞

Day 2-July 18

Meeting ID: 991 1775 6218

Meeting Link: https://zoom.com.cn/j/99117756218

Conference Chair

Prof. Yifei Chen
China Agricultural University, China

Short Bio: **Professor Yifei Chen：** Director of the Center of R&D in Engineering of CIEE in China Agricultural University, the member of Student Education Committee of China Agricultural University. He also is a senior member of Chinese Society of Agricultural Engineering(CSAE), a member of Chinese Association of Automation(CAA), senior staff member of Chinese Intelligent Automation Committee as well as a member of IEEE, member of council of Beijing Computer Society, vice president of Intelligent Animal Husbandry Association of China. Prof. Chen's research interesting is agricultural robots as well as intelligent control technologies used in agricultural engineering. Moreover since 2014, he has interested on AI technologies used in agriculture, such as researching on the pig behaviour recognition based on deep learning as well as the fruit morphological measurement based on three-dimensional reconstruction etc.. Prof. Chen have published over 80 journal articles (SCI/EI) and over 30 international conference publications. He is currently the Editor-in-Chief of IJCCE, and member of editorial and advisory boards of several domestic journals in control, networks, and applied agricultural control engineering.

09:00-9:05

Day 2-July 18

Meeting ID: 991 1775 6218

Meeting Link: https://zoom.com.cn/j/99117756218

Keynote Speaker

Prof. Gang FENG
City University of Hong Kong
IEEE Fellow

09:05-09:45

Short Bio: Gang Feng received the B.Eng and M.Eng. Degrees in Automatic Control from Nanjing Aeronautical Institute, China in 1982 and in 1984 respectively, and the Ph.D. degree in Electrical Engineering from the University of Melbourne, Australia in 1992.

Professor Feng was Lectuer/Senior Lecturer, University of New South Wales, 1992-1999. He has been with City University of Hong Kong since 2000 where he is now a Chair Professor of Mechatronic Engineering. He has received a ChangJiang Chair Professorship award conferred by Ministry of Education, the Alexander von Humboldt Fellowship, the IEEE Transactions on Fuzzy Systems Outstanding Paper Award, and several best conference paper awards. He is listed as a SCI highly cited researcher by Clarivate Analytics. He is an author of one research monograph entitled "Analysis and Synthesis of Fuzzy Control Systems: A Model Based Approach", and over 300 SCI indexed papers including over 130 in IEEE Transactions. His research interests include intelligent systems and control, networked control systems, and multi-agent systems and control.

Professor Feng is a fellow of IEEE. He has been the Associate Editor of IEEE Trans. Automatic Control, IEEE Trans. on Fuzzy Systems, IEEE Trans. Systems, Man, & Cybernetics, Mechatronics, Journal of Systems Science and Complexity, and Journal of Control Theory and Applications. He is on the advisory board of Unmanned Systems.

"Adaptive Event-Triggered Control of Multi-Agent Systems"

Abstract: In this talk event-triggered control will be first overviewed. The motivation and major event-triggering mechanisms will be discussed. The challenging issue on exclusion of Zeno behavior will be highlighted. Then the adaptive event-triggered control will be considered for heterogeneous multi-agent systems. A fully distributed adaptive even-triggered control scheme will be presented for output consensus of such multi-agent systems. It is shown that the output consensus problem can be solved by the proposed adaptive event-triggered control scheme if a necessary and sufficient condition is satisfied. The feasibility of the proposed control scheme is discussed by excluding Zeno behavior. A numerical example is given to illustrate the effectiveness of the proposed control scheme.

Day 2-July 18

Meeting ID: 991 1775 6218

Meeting Link: https://zoom.com.cn/j/99117756218

Keynote Speaker

Prof. Chun-Yi Su
Concordia University, Canada
长江学者讲座教授

09:45-10:25

Short Bio: Dr. Chun-Yi Su is currently a Professor and holder of Concordia University Research Chair's position. His research covers control theory and its applications to various mechanical systems, with a focus on control of systems involving hysteresis nonlinearities. He is the author or co-author of over 200 journal publications. He has been identified as 2019 Highly Cited Researchers from the Web of Science Group. Dr. Su has served as Associate Editor for several journals, including IEEE Transactions on Automatic Control, IEEE Transactions on Control Systems Technology, IEEE Transactions on Cybernetics. He is a Distinguished Lecturer of IEEE RA Society. He served for many conferences as an Organizing Committee Member, including the General Chairs and Program Chairs.

"Modeling and Control of Smart Actuators"

Abstract: Smart actuators featuring high energy densities, large strokes and fast responses are playing an increasingly important role in micro/nano-positioning applications. However, hysteresis nonlinearities are very common in smart material-based actuators. For decades, the existence of such nonlinearities has provided one of the most difficult challenges to control design engineers since the entire Laplace domain and most state space control design techniques were developed exclusively for differentiable linear or nonlinear systems. Hence, the controllers were designed where the existence of hysteresis nonlinearities in practical systems were neglected. When the actuators are considered with hysteresis nonlinearities, these methods encountered substantial difficulties in the analysis, model fitting and control design stages. It was extremely difficult, if not impossible, to design or prove stability of such systems. The development of techniques for the identification of such nonlinearities in smart material-based actuators has emerged as a significant problem in itself. This talk is intended to discuss state-of-the-art solutions for modeling and control techniques of hysteresis effects in smart actuators. The presentation and discussion will range from modeling of hysteresis, to the design of corresponding control schemes, especially in the absence of complete information concerning the system model and state.

Day 2-July 18

Meeting ID: 991 1775 6218

Meeting Link: https://zoom.com.cn/j/99117756218

Keynote Speaker

Prof. Maria Pia Fanti
Polytechnic of Bari, Italy

IEEE Fellow

14:00-14:40

Short Bio: Maria Pia Fanti received the Laurea degree in electronic engineering from the University of Pisa, Pisa, Italy, in 1983. She was a visiting researcher at the Rensselaer Polytechnic Institute of Troy, New York, in 1999. Since 1983, she has been with the Department of Electrical and Information Engineering of the Polytechnic of Bari, Italy, where she is currently a Full Professor of system and control engineering and Chair of the Laboratory of Automation and Control.

Her research interests include management and modeling of complex systems, such as transportation and logistic systems; discrete-event systems; Petri nets; consensus protocols; fault detection. Prof. Fanti is IEEE Fellow and has published more than +290 papers and two textbooks on her research topics. She was editor of the IEEE Trans. on Automation Science and Engineering and she is Associate Editor of the IEEE Trans. on Systems, Man, and Cybernetics: Systems. She was member at large of the Board of Governors of the IEEE Systems, Man, and Cybernetics Society, and actually she is member of the AdCom of the IEEE Robotics and Automaton Society, and chair of the Technical Committee on Automation in Logistics of the IEEE Robotics and Automation Society..

"New Approaches for Managing Logistic and Transportation Systems"

Abstract: Logistic and transportation systems of the future are expected to provide resource-efficient, sustainable, safe, equitable and timely handling of goods and management services for the benefit of economy and society, in order to support global supply chains and multimodal transportation systems. The increasing availability of artificial intelligence technologies, such as remote sensing, information and communication tools, big data, blockchain, Internet of Things and machine learning, can capture, elaborate and communicate historical and real-time data and provide opportunities for establishing cloud-based and collaborative logistic ecosystems. This talk will present how automation science has potential to enhance the performance of logistic and transportation systems by providing novel, integrated hardware and software solutions that affect the economics of different segments of the logistics chain and transportation, by improving throughput and reducing resource requirements and environmental impact. Moreover, the talk will consider innovative management techniques based on the modern communications, remote sensing and automation technologies, that are suitable for helping stakeholders and decision makers to manage and optimize logistic and manufacturing systems. Hence, the presentation will focus on the design of cloud-based platforms enabling the integration of supply-chain-related transport processes through artificial intelligence solutions. In this context, some recent results and outcomes obtained in European projects will be discussed.

Day 2-July 18

Meeting ID: 991 1775 6218

Meeting Link: https://zoom.com.cn/j/99117756218

Invited Speaker

Prof. Qinglei Hu

Beihang University, China

14:40-15:00

Short Bio: Qinglei Hu obtained his B.Eng. degree in electrical and electronic engineering from Zhengzhou University, Zhengzhou, China, in 2001, and his Ph.D. degree, with the specialization in guidance and control, in control science and engineering from Harbin Institute of Technology, Harbin, China, in 2006. From 2003 to 2014, he was with the Department of Control Science and Engineering, Harbin Institute of Technology, and then he joined Beihang University in 2014 as a Full Professor. His current research interests include variable structure control and applications, and fault-tolerant control and applications. In these areas, he has authored or co-authored more than 80 technical papers. He serves as Associate Editor for AEROSPACE SCIENCE AND TECHNOLOGY, and the IEEE TRANSACTIONS ON AEROSPACE AND ELECTRICAL SYSTEMS.

"Adaptive Pose Control for Spacecraft Proximity Operations with Prescribed Performance Under Spatial Motion Constraints"

Abstract: Spacecraft proximity operations, as enabling technologies for some current and near-future on-orbit missions such as removing space debris, on-orbit servicing, repairing/retrieving defunct satellites, etc., have attracted extensive attention. However, in close proximity operations, several practical problems including mass and inertia uncertainties, spatial motion constraints (approaching path constraint and field-of-view constraint), and specific mission requirements, give rise to significant challenges for the pose tracking control design of the pursuer. In this talk, I would like to share our recent research result on this subject and introduce a novel pose tracking control framework for spacecraft proximity operations with a freely tumbling target, employing the prescribed performance control (PPC) methodology. To be specific, the whole operations involved are divided into two synchronously occurring maneuvers, i.e., relative position tracking and boresight pointing adjustment. For the former, a new relative translational dynamic model is established to facilitate its problem formulation and solving, while for the latter, a desired attitude is extracted to align the boresight of the pursuer's onboard vision sensor towards the target. Within this setting, an immersion and invariance adaptive pose controller is designed based on the PPC design approach integrating a class of appointed-time performance functions. The designed controller is capable of achieving prescribed performance guarantees for the pose tracking errors, and meanwhile guarantee asymptotic convergence of the velocity and angular velocity tracking errors, regardless of mass and inertia uncertainties. The salient feature of the proposed method is that, by judiciously imposing the performance specifications on the pose tracking errors, it can (i) enable the pursuer to accomplish the proximity operations in a designer-appointed time with prespecified maximum steady-state accuracy and overshoot, and (ii) ensure compliance with spatial motion constraints and avoid singularity of the attitude extraction algorithm. Finally, I shall close by discussing on-going and future research avenues that can further address some practical engineering problem in spacecraft proximity operations.

Day 2-July 18

Meeting ID: 991 1775 6218

Meeting Link: https://zoom.com.cn/j/99117756218

Invited Speaker

Assoc. Prof. Qingguang Yu

Tsing Hua University, China

15:00-15:20

Short Bio: Assoc. Prof. Qingguang Yu received the Ph.D. degree in electrical engineering from China University of Mining and Technology in 1994. He was a Post-Doctoral Associate with State Key Laboratory of Power Systems in Department of Electrical Engineering, Tsinghua University in 1995, He has been a member of Tsinghua University Faculty since 1998. His research interests include FACTS installation, reactive power compensation, non-intrusive load monitoring (NILM) and control strategy of smart microgrid for renewable energy and power systems, sustainable energy systems.

"Design and Accomplishment of AI Control Platform for Reactive Power Cloud Compensation System"

Abstract: The balance of active and reactive power in the power system is very important for the normal operation of the whole system, the correct method is to inject the corresponding reactive power where much of the reactive power is consumed to maintain the balance. it is of great positive significance to develop a device with integrated new switching technology that can realize non-impact switching of capacitor banks and be controlled by better algorithms. In this paper，an artificial intelligent (AI) control platform for reactive power cloud compensation system is designed and achieved, by switching capacitors on the load side, the requirements of capacitor switching conditions are analyzed, the requirements of capacitor bank and capacitor controller are put forward, and the theoretical analysis is carried out. Results of the installation operation in site show high performance of the designed system.