

Annual Report of IEEE Harbin Section

PART A - SECTION SUMMARY

A.1 Executive Summary –

- Section Executive Committee Member List

Dianguo Xu(Chair)
 Qun Wu (Vice Chair)
 Guangren Duan
 Lixian Zhang
 Qi Wang
 Bin Zou
 Weixiao Meng
 Jiahui FU
 Fanyi Meng
 Tao Jiang
 Guohui Yang(Secretary)
 Kuang Zhang (Chair for student branch)
 Shuai Yang (treasurer)

- Section Highlights

1.Harbin section is planning a series of activities to celebrate the 50th anniversary of R10 and 10th anniversary of Harbin

In 2017,it is just the 10th anniversary of IEEE Harbin section, in addition,2017 is the 50th anniversary of IEEE R10 formation,so a special organizing committee for the celebration activity of 10th anniversary of IEEE Harbin section has been established.In this committee,Prof.Wu Qun,the vice chair is the general chair.some significant series activities has been discussed for the activities from August 2016 to September 2017.Some fund was invested by Harbin Institute of Technology.The proposed activities include:

1. Celebration activity of the 10th anniversary of IEEE Harbin section
2. Celebration activity of the 50th anniversary of IEEE R10 formation
3. An introduction to the develop history of the Harbin section,and chapter activity,including R10 and IEEE history(invited).
4. A talk will be given to introduce the position and function of the IEEE R10 organization in the whole IEEE world.Let more young scientists to understand IEEE,R10 and Harbin section/chapters.
- 5.Some series forum will be organized by invited lecture.During the forum,the new leaders coming from different sections and chapters will be invited to Harbin to exchange.Special seminars will be organized,including the topics like “How to organize an international conference as a technical co-sponsor”,”What is the duty for chapter chair and secretary””How to publish papers in the IEEE journals””how to review a paper,how to control paper plagiarism”.Some special training courses will be given by R10 officers, including Section Management Training,Membership Development Training,and so on.

2.APCAP2014 moved to Harbin for the first time

Technically-sponsored by IEEE Harbin AP/MTT/EMC joint chapter,and supported by IEEE Harbin section,the third Asia-Pacific Conference on Antennas and Propagation (APCAP2014)was successfully organized in Harbin city.As a general chair of the conference,and a vice chair for Harbin section,Prof.Wu Qun made lots of contribution to this event’s preparation.The invited speakers include Prof.Wei Hong(first from left) from,China, Prof.Zhining Chen(second from left),from Singapore,Prof.Nakano(third from

left),from Japan ,Prof. Hiroyuki Arai(fifth from left),from Japan,Prof.Ya-Qiu Jin(eighth from left),from China.

3.A significant tradition Chinese festival——2015 IEEE Harbin ComSoc Chapter activity

An annual meeting of Harbin Communication Society Chapter was held at Communication Research Center in Harbin Institute of Technology(HIT) on Sep. 28, 2015(the traditional Chinese mid-autumn festival). The activity was conducted by the chair of ComSoc Harbin Chapter, Prof. WeixiaoMeng, with the main purpose of promoting IEEE ComSoc among young engineers and students.

Prof. Meng presented an opening speech starting with a brief introduction of Harbin Chapter, which is characterized by the technical lectures of visiting scholars and interesting self-designed LOGO and souvenirs. Then, the basic information of IEEE and ComSoc were summarized, which mainly included the component of organization, staff composition, research achievement, membership application, and related websites. Noticing that most of the listeners are young students just starting their researches, Prof. Meng introduced in detail some major conferences and journals sponsored by IEEE ComSoc. Then, the secretary of of ComSoc Harbin Chapter, Dr. Shuai Han gave a presentation entitled *Conference Paper Versus Journal Paper*, which described the newly published statement of IEEE. This statement is related to the confusion whether it is proper for an author to submit a journal paper based on material that has been previously published in one or more conference papers. As most of the students have this confusion, the lecture of Dr. Han is meaningful.

Considering it was a traditional Chinese festival, the mid-autumn festival, Harbin Chapter organized some interesting activities, such as guessing lantern riddles and eating moon cakes. This activity ended with the sound of joy.

4.Harbin EDS Chapter organizes conference in Changchun city

On July 16-18, an annual series of conference,the 2015 International Conference on Optoelectronics and Microelectronics, was held in ChangChun, JinLin Province. IEEE EDS Harbin Chapter is the technical sponsor. The conference is supported by National Natural Science Foundation of China and Chinese Society for Optical Engineering, and is sponsored by ChangChun University of Science and Technology.

The chairman of conference is as followed: **Academician Wang LiJun** (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences) , **Prof.Jung Han** (Yale University, senior member of IEEE), **Prof. Sakai, Shiro** (The University of Tokushima) and **Prof. Huadong Yu** (Changchun University of Science and Technology).

5. Resort tour for members of the Harbin AP/MTT/EMC chapter

IEEE Harbin AP/MTT/EMC joint chapter organizes a resort tour for local young members.In this activity,the chapter chair,Prof.Wu Qun summarized last year's achievements,and planed new aim for 2016.

- Major Events (International, National)
Technically cosponsored few national conferences
- Major Student and Affinity Group Activities

Student Branch Activities:
Workshop on IEEEExplore
Workshop on CST
Workshop on ADS
Membership Development Boot Camp

- Awards

A.2 Financial Report – (Please follow the format given below)

- Summary (as per submitted L50)
Financial report submitted via Netsuite

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

- Total number of active members in the past 3 years.:350;up to 2015 year,the total number is 815.just 2 times of 2014 year,it is nearly 200% increasing.
- Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members
 - Membership boot camps were organized
 - Social gathering were organized for membership retention

B.2 Chapter Activities

1. Total number of Chapters in the Section: 6
2. Number of Chapters formed in the current year: 1
3. Number of active Chapters (Chapters who have reported required number of meetings during the year): 4
4. Summary of Chapter activities
AP-S Chapter organized 3 technical talks
EMC Chapter organized 3 technical talks
MTT Chapter organized 2 technical talks
ComSo Chapter organized 2 technical talks
Systems, Man, and Cybernetics Chapter organized 3 technical talks

1st Talk

Title: Multi-Agent Networked Systems with Adversarial Elements

Date and Time: Sunday, 10th May 2015 18:30-20:30

Venue: Room 327, New Activity Center, Harbin Institute of Technology

Speaker: Tamer Basar

Speaker's Biography:

Dr. Başar has authored or co-authored over 700 publications in the general areas of optimal, robust, and adaptive control; large-scale and decentralized systems and control; dynamic games; stochastic control; estimation theory; stochastic processes; information theory; communication systems and networks; security and trust; and mathematical economics. He is co-author of the text *Dynamic Noncooperative Game Theory* (Academic Press, 1982; second edition, 1995; latest edition in SIAM Series in Classics in Applied Mathematics, 1999), editor of the volume *Dynamic Games and Applications in Economics* (Springer-Verlag, 1986), co-editor of *Differential Games and Applications* (Springer-Verlag, 1988), co-editor of *Advances in Dynamic Games and Applications* (Birkhäuser, 1994), co-author of the book *H-infinity Optimal Control and Related Minimax Design Problems* (Birkhäuser, 1991; second edition, 1995), Editor of the centennial volume *Control Theory: Twenty-Five Seminal Papers (1932-1981)* (IEEE Press, 2001), co-author of the book *Network Security: A Decision and Game Theoretic Approach* (Cambridge University Press, 2011), co-author of *Game Theory in Wireless and Communication Networks: Theory, Models, and Applications* (Cambridge University Press, 2011), and co-author of *Stochastic Networked Control Systems: Stabilization and Optimization under Information Constraints* (Birkhäuser, 2013). His current research interests include

stochastic teams and games; routing, pricing, and congestion control in communication networks; control over wired and wireless networks; sensor networks; formation in adversarial environments; mobile and distributed computing; risk-sensitive estimation and control; mean-field game theory; game-theoretic approaches to security in computer networks, including intrusion detection and response; energy systems, including the smart grid; and cyber-physical systems.

Tamer Başar is a member of the National Academy of Engineering (of the USA), and also carries memberships in several scientific organizations, among which are SIAM, SEDC (Society for Economic Dynamics and Control), ISDG (International Society of Dynamic Games), GTS (Game Theory Society), European Academy of Sciences, and IEEE (Institute of Electrical and Electronics Engineers). He was elected a Fellow of IEEE in 1983, and has served its Control Systems Society in various capacities, among which are: Past President (2001), President (2000), President-Elect (1999), Vice-President for Financial Affairs (1998), Vice-President for Publications (1997), the Editor for Technical Notes and Correspondence for its Transactions on Automatic Control (1992-1994), and as the general chairman (1992) and program chairman (1989) of its flagship conference (Conference on Decision and Control). He has also been active in IFAC (International Federation of Automatic Control), in the organization of several workshops and symposia, and as Editor and Deputy Editor-in-Chief of its flagship journal *Automatica*, from 1992 until 2003, and Editor-in-Chief and Chair of its editorial board from 2004 until 2014. During the period 1990-1994, he was the President of the International Society of Dynamic Games (ISDG), and is currently the Series Editor of the *Annals of ISDG* (published by Birkhäuser), the Series Editor of *Systems & Control: Foundations and Applications* (published by Birkhäuser), the Series Editor of *Static and Dynamic Game Theory: Foundations and Applications*, an Editor of *SpringerBriefs in Electronic and Computer Engineering: Control, Automation and Robotics*, and Honorary Editor of *Applied and Computational Mathematics*. He is also on the editorial and advisory boards of a number of other international journals. He was the President of the American Automatic Control Council (2010-2011), Past President of AACC (2012-2013), and a member of the IFAC Council (2011-2014). Currently, he is the Chair of the Publications Committee of IFAC. Among some of the honors and awards he has received are (in reverse chronological order): IEEE Control Systems (Technical Field) Award (2014), Honorary Chair Professorship from Tsinghua University, Beijing, China (2014), Honorary Doctorate (Doctor Honoris Causa) from Bogaziçi University, Istanbul (2012), SIAM Fellow (2012), Honorary Doctorate from the National Academy of Sciences of Azerbaijan (2011), Isaacs Award of ISDG (2010), Honorary Professorship from Northeastern University, Shenyang, China (2008), Swanlund Endowed Chair at UIUC (2007), Honorary Doctorate (Doctor Honoris Causa) from Doguş University, Istanbul (2007), Richard E. Bellman Control Heritage Award of the American Automatic Control Council (2006), Giorgio Quazza Medal of IFAC (2005), Outstanding Service Award of IFAC (2005), IFAC Fellow (2005), Center for Advanced Study Professorship at UIUC (2005), Hendrik W. Bode Lecture Prize of the IEEE Control Systems Society (2004), Tau Beta Pi Daniel C. Drucker Eminent Faculty Award of the College of Engineering of UIUC (2004), election to the National Academy of Engineering (of the USA) (2000), IEEE Millennium Medal (2000), Fredric G. and Elizabeth H. Nearing Distinguished Professorship at UIUC (1998), Axelby Outstanding Paper Award (1995) and Distinguished Member Award (1993) of the IEEE Control Systems Society, and Medal of Science of Turkey (1993).

2nd Talk

Title: Control of Switching Systems with Markovian Jumps

Date and Time: Tuesday, 22nd Sep 2015 14:00-16:00

Venue: Room 513, Main Building, Harbin Institute of Technology

Speaker: Patrizio Colaneri

Abstract:

In the seminar, we introduce and focus on control strategies for continuous-time Markov jump linear systems, in particular to a new control strategy denominated minimax control. This strategy generalizes switching and linear parameter-varying control strategies and is determined such as to preserve stochastic stability and guaranteed performance. The special classes of Markov mode dependent and mode independent control are considered. The design methodology is characterized by minimax problems for which the existence of a saddle point is the central issue to be taken into account. As a natural application, Markov jump linear systems state feedback control design is discussed under this framework. The case of positive dual switched systems is particularly emphasized.

Speaker's Biography:

Patrizio Colaneri was born in Palmoli, Italy, in 1956. He received the PhD degree (Dottorato di Ricerca) in Automatic Control in 1987. After a few years in industry and at the National Research Council of Italy, he joined the Politecnico di Milano where he is full professor of Automatica and served as head of the PhD school on ICT (2007-2009). He spent a semester at the Systems Research Center of the University of Maryland (1989) and at the Hamilton Institute of the National University of Ireland (2009). He also collaborates with the Johannes Kepler University in Linz since 2000. Dr. Colaneri was a YAP (Young Author Prize) finalist at the 1990 IFAC World Congress, Tallin, USSR. He is a member of the IFAC Technical Board, a subject editor of the *International Journal of Robust and Nonlinear Control*, a Senior Editor of the *IEEE Transaction on Automatic Control* and a Senior Editor of *Nonlinear Analysis: Hybrid*

Systems. He was a member of the Council of EUCA (European Union Control Association), and has been serving for six years as Associate Editor of *Automatica* (certificate of outstanding service). In 2010 he was elevated to the degree of IEEE Fellow for contributions on periodic and switching control. Since 2011 he is also a Fellow of IFAC (International Federation of Automatic Control). His main interests are in the area of periodic systems and control, robust filtering and control, and switching control. He has authored/ co-authored more than 200 papers and five books, including “Control Theory and Design: an RH_2 and RH_∞ viewpoint”, published by Academic Press in 1997, “Periodic Systems: Filtering and Control”, Springer Verlag, 2009.

3rd talk

Title: The Page Rank Problem: A Systems and Control Viewpoint

Date and Time: Wednesday, 4th Nov 2015 14:00-15:00

Venue: Room 404, Building E2, Science Park, Harbin Institute of Technology

Speaker: Roberto Tempo

Abstract:

In this lecture, we study the Page Rank problem and illustrate it by means of the so-called random surfer model and the teleportation matrix. Subsequently, we present new distributed randomized algorithms (of Las Vegas type) for its efficient computation and we show the main properties of these algorithms utilizing results of the theory of positive matrices and Markov Chains. Finally, we discuss how these ideas can be extended to different problems of interest to the systems and control community, including ranking of scientific journals, aggregation techniques and consensus of multi-agent systems. In particular, we explain the so-called Eigenfactor metric for ranking scientific journals in order of importance.

Speaker’s Biography:

Dr. Tempo is currently a Director of Research of Systems and Computer Engineering at CNR-IEIIT, Politecnico di Torino, Italy. His research activities are focused on the analysis and design of complex systems with uncertainty, and various applications within information technology. Dr. Tempo is a Fellow of the IEEE and a Fellow of the IFAC. He is a recipient of the IFAC Outstanding Paper Prize Award for a paper published in *Automatica* and of the Distinguished Member Award from the IEEE Control Systems Society. He is a Corresponding Member of the Academy of Sciences, Institute of Bologna, Italy, Class Engineering Sciences. In 2010 Dr. Tempo was President of the IEEE Control Systems Society. He is currently serving as Editor-in-Chief of *Automatica*. He has been Editor for Technical Notes and Correspondence of the IEEE Transactions on Automatic Control in 2005-2009 and a Senior Editor of the same journal in 2011-2014. He is a member of the Advisory Board of *Systems & Control: Foundations & Applications*, Birkhauser.

B.3 Professional and Continuing Education Activities

Summary of continuing Educational activities including conferences, technical activities, training courses, and distinguished lecture programs with attachment table / information

Table of Seminars or international conference:

Title	Date
2015 4th International Conference on Computer Science and Network Technology	
2015 International Conference on Optoelectronics and Microelectronics	
International Conference on Fluid Power and Mechatro	
2015 International Conference on Intelligent Computing and Internet of Things	
2015 International Conference on Estimation, Detection and Information Fusion	

B.4 Students Activities

5. Total number of Student Branches in the Section: 1
6. Number of Student Branches formed in the current year: 0
7. Section level student activities (student congress, paper and other contests, awards etc) : 3
8. Number of active Student Branches (Student Branches who have reported required number of meetings during the year): 1
9. Summary of Student Branch activities (Student Branch wise with attachment table/information)

Student Branch:

Title	Date
-------	------

Metamaterial polarization converter	
Research on the phase discontinuities metasurface	
Workshop on IEEE Xplore	

B.5 Affinity Group Activities

10. Young Professional (YP):
11. Women In Engineering (WIE)
 - Yet to start
12. Life Member: 0

B.6 Awards & Recognition Activities

- Award constituted by the Section:
- Please list all Awards and Recognitions received by the Section, and members in the Section, from R 10 and IEEE HQ during the year 2015:

B.7 Communication Activities (Newsletter, Home Page, E-mail etc.)

- Newsletter (name and number of issues in the year): submitted.
- Home Page of the Section (give the URL and how often it is updated)
<http://ieee.hit.edu.cn>, event driven update
- Other means of contacts with Section members including social media
Section and Student Branch have their WeChat group.

B.8 Industry Relations

- Membership growth and retention:
- Activities for/with industrial members:

B.9 Humanitarian Technology Activities

- Humanitarian Technology related activities supported by the Section including collaboration with other OUs.:
- SIGHT Activities:

B.10 Community Activities

- IEEE Social activities (Family day, IEEE day, Engineers Week)”
 - celebrating IEEE day

PART C - OTHERS

C.1 Special Events

- Please briefly describe the importance of special events and the outcomes achieved
In the year 2013, 2 saloons were organized. All the members of the IEEE Harbin AP Chapter were invited to attend. In the saloons, they exchanged their ideas on the new developments of antennas and propagations. Also they provided some useful suggestions for the development of IEEE Harbin AP Chapter.
- Funding secured from the IEEE and external sources including sponsorships

C.2 Relationship with National and International Societies and Non-Government Organizations (NGO)

- Nature of relationship and details of any formal agreement signed : **NULL**
- Details of joint activities
- Benefit to IEEE members (for example discounts, access to technical information etc.)
- Benefit to Section (for example help in membership development, venue facilities, cost saving etc.)

C3. Collaboration with other IEEE Sections

- Support extended to neighboring Sections:**NULL**
- Joint activities with any other Section: Joint technical seminars were organized with Kolkata Section

C.4 Support extended to Sub-sections & Society Chapters within the Section

- Support extended for organising technical, educational and professional activities:
- Joint activities for membership development: **NULL**
- Support extended for the formation of a Sub-section or transition of a Sub-section into a full Section:

C.5 Best Practices of your Section (which you would like to share with other Sections for the benefits of members)

- Regular organization of technical activities
- Maintaining an active student branch
- Organizing membership development bootcamps

C.6 Problems anticipated and suggestions for solutions, if any:

The use of Harbin section's card is very limited because that most of shops or restaurants do not accept the overseas card. However, Harbin section gets additional activity fund from Harbin Institute of Technology..

PART D - GOALS AND PLANS

D.1 Continuation of project/activity in progress and their implementation plans

- Creation of student innovation labs.
- Increasing outreach activities
- Organizing technical activities

D.2 Goals and Future Plans

- Increase membership counts
- Increase technical activities
- Increasing membership base by including undergraduate students
- Organizing international conferences

D.3 Any innovative ideas to make IEEE more creative and value added for sustaining the membership retention and recruitment goals.

- Identify new membership bases
- Organize membership bootcamps
- Offer innovative membership benefits and more networking with peers.