State of the Society
March 2017

Rabab Ward, President
IEEE Signal Processing Society

2017 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), New Orleans, LA

What's Happening ?   ... A lot!

▸ Visibility Campaign

▸ New Conferences

▸ New Journals

▸ New Special Interest Groups

▸ Membership Initiatives

▸ New Educational Activities

▸ New Awards

▸ New Foundation Fund

Organization: Newly Elected Leadership

▶ **Vice President-Membership**:

   Nikos Sidiropoulos

   University of Minnesota

▶ Sidiropoulos succeeds **Kostas Plataniotis** (University of Toronto), who held the post of Vice President-Membership since January 2014. During his term, he spearheaded several new initiatives with a focus on Students, Chapter and Membership development.

Organization: Newly Elected Leadership

▸ **Award Board Chair:**

   H. Vincent Poor

   Princeton University

▸ Poor succeeds **Jose' M. F. Moura** (Carnegie Mellon University), who held the post of Awards Board Chair since January 2014. During his term, he revamped the Society's awards nomination process and implemented several new Society level awards.

SP Awareness/Visibility Campaign

▶ **Aim**: Popularize & Promote *Signal Processing* and its Applications

▶ **Target audiences**: High school/college students, professionals, public-at-large.

▶ Four visibility videos have been created and are available on the SPS YouTube channel, which are noted below. The first two videos have been translated into Arabic, Spanish and Mandarin.
1. "**What is Signal Processing**",
2. "**Signal Processing and Machine Learning**"
3. "**Signal Processing in Free Viewpoint Television**"
4. "**The Benefits of Spoken Language Technology**".

▶ Working with IFS TC on a new video on "**Multimedia Forensics**" and completed another video called "**Under the Radar**"

▶ New Tagline: "***Signal Processing: The Science Behind Our Digital Life***"

SP Awareness/Visibility Campaign

▸ **Careers in Signal Processing Videos**:
1. Impacting Tomorrow, Today (main)
2. Professional Development Through Mentorship
3. A World without Signal Processing
4. A Versatile Field for A Volatile Future
5. Advancing Your Career with SPS
6. Signal Processing for Social Responsibility
7. A Diverse Field Impacting the Future

▸ **All videos are available on the SPS YouTube channel, as well as the SPS Resource Center.**

Multi-Faceted Outreach Effort

A new and inspiring SPS website was launched last June with centralized resources for SPS and signal processing disciplines for the specialist and non-specialist.

▸ A new SPS Blog feature: for SPS members to engage and exchange news, educational content, etc.

▸ Media outreach efforts to promote signal processing across commercial publications, trade publications, and blogs.

▸ For comments or interest in supporting visibility activities, email: sp.info@ieee.org

Outreach Activities

China

Outreach Activities

Muscat, Oman

President Rabab Ward with Dr. Ahmed M. Al Naamany, Vice Chair, Oman Section.

Outreach Activities

Muscat, Oman

President Rabab Ward with IEEE members in Muscat, Oman outreach event.

Conferences: Upcoming Events

ICASSP:

▸ New Orleans, LA – 2017

▸ Seoul, South Korea- 2018

▸ Brighton, UK – 2019

▸ Barcelona, Spain -2020

ICIP:

▸ Beijing, China – 2017

▸ Athens, Greece – 2018

▸ Taipei, Taiwan – 2019

▸ Abu Dhabi, UAE – 2020

GlobalSIP:

▸ Montreal, Québec, Canada – 2017

▸ Anaheim, CA - 2018

GlobalSIP

▸ Recently launched symposia based conference
- Focused on current and emerging signal processing theoretical foundations and applications

▸ Emphasizes interdisciplinary research with promising impact

▸ Locations:
- Austin, TX, 3-5 December 2013
- Atlanta, GA, 3-5 December, 2014
- Orlando, FL, 14-16 December 2015
- Washington, DC, 7-9 December 2016
- Montreal, Québec, Canada, 14-16 November 2017
- Anaheim, CA, December 2018

Community Building

▶ New SPS regional meetings
▶ For outreach
▶ Serve educational needs of members in regional communities
▶ Provide venues for presenting quality research
▶ Provide opportunities to network
▶ Help colleagues engage with global community
▶ ChinaSIP in Beijing 2013, Xian 2014, Chengdu 2015

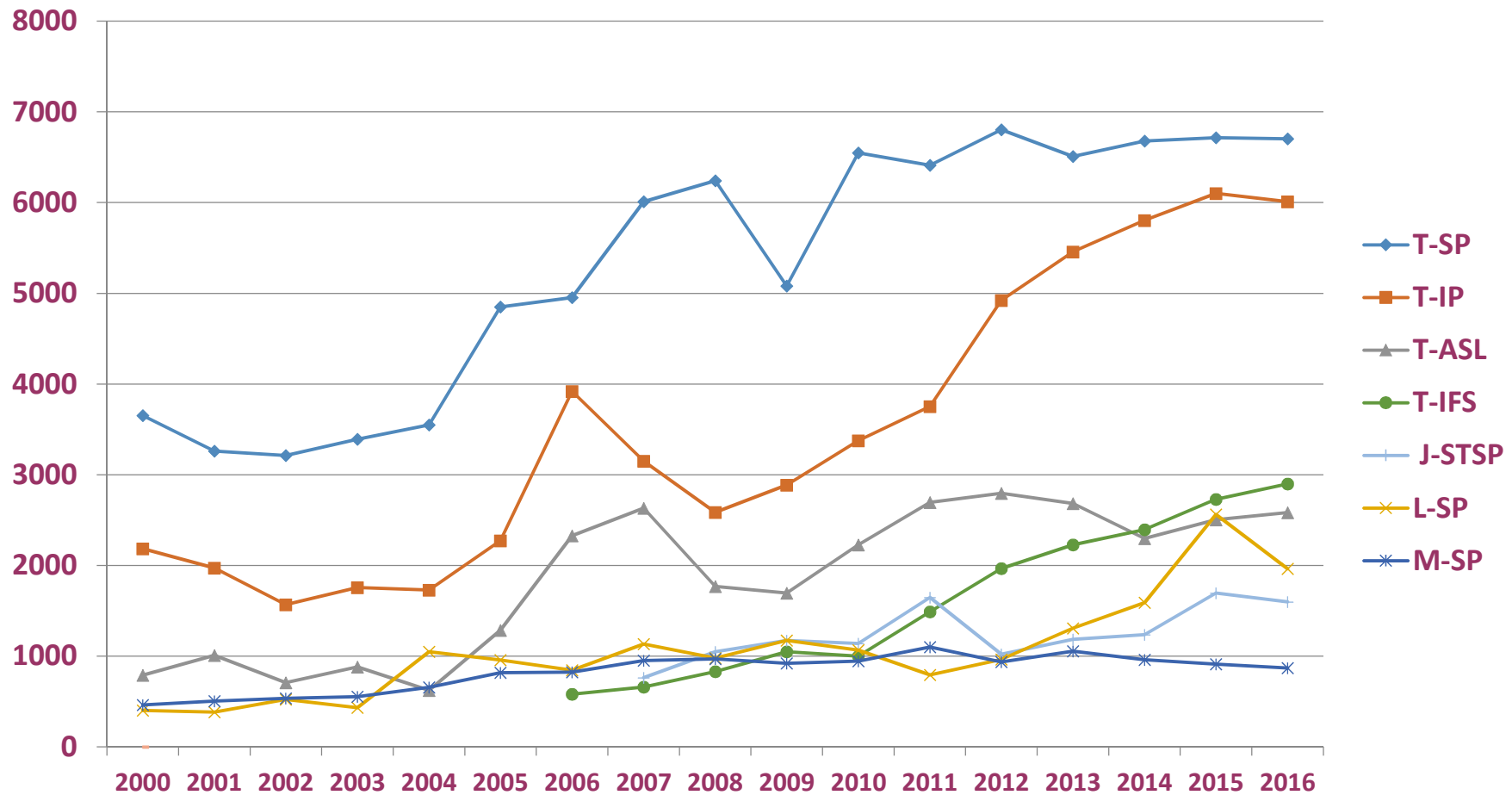# **Conferences**: New - IEEE SPS Signal and Data Science Forum (SIDAS)

▸ For Education, Networking and Community Building.

▸ Similar to the VALSE Format.

▸ No paper submission, but rather **Invited Talks**, **Plenaries ,Panels** and **Posters**, giving highlights of recent selected journals, conference works and new technological advancements.

   - 25-26 April 2016 in Wuhan, China

   - September 2017, Beijing, China
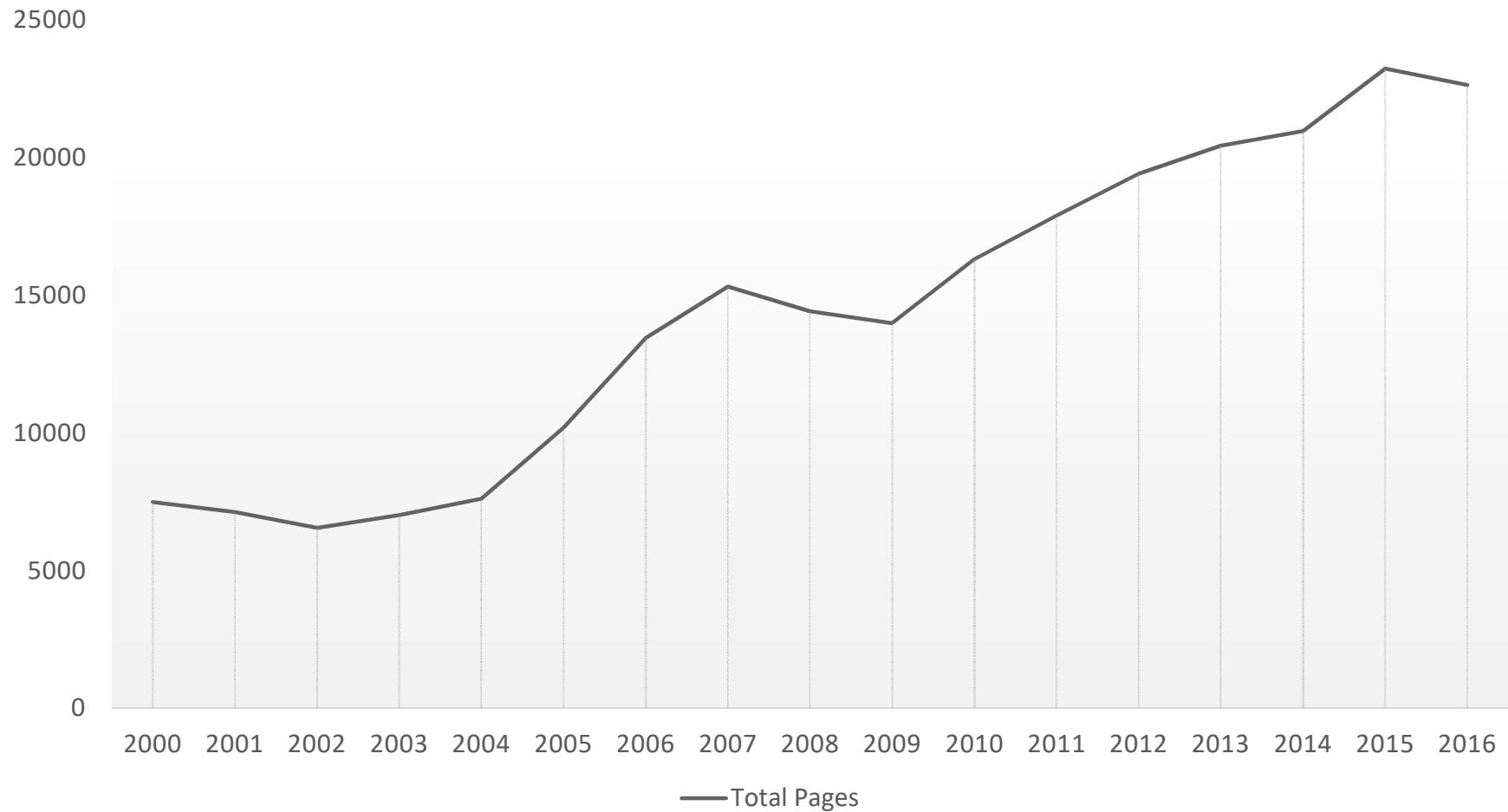
Technical Directions: Creation of Special Interest Groups

▶ Provisional groups created to quickly address emerging technical areas

▶ Three SIGs created: Big Data, Computational Imaging, Internet of Things

▶ SIGs have a life-span of up to three years.

▶ After 3 years, the TC Review Committee determines whether the SIG continues, becomes a TC, or is disbanded.

▶ The Technical Directions Board identifies emerging areas and creates and receives proposals for Special Interest Groups, with approval by EXCOM.

IEEE Signal Processing Society

IEEE

Publications: Published Pages Per Journal (2000-16)

Publications: Total Published Pages (2000-16)

Total Pages

Publications: Impact

	Impact factor	Year 2015 Ranking
Signal Processing Magazine	6.7	3
Trans. on Image Processing	3.7	14
Trans. on Medical Imaging	3.8	13
Trans. on Signal Processing	2.6	34
Trans. on Audio/Speech/Lang.	1.2	78
Trans. on Wireless Comm.	2.9	28
Trans. on Mobile Computing	2.5	18 (CS-Info Sys)
Journal of Selected Topics on SP	2.6	37
Trans. Info Forensics and Security	2.4	43
Trans. on Multimedia	2.5	4 (CS-Software Engr.)
Signal Processing Letters	1.7	95

(Ranking category is **electrical and electronic engineering**, unless otherwise noted)

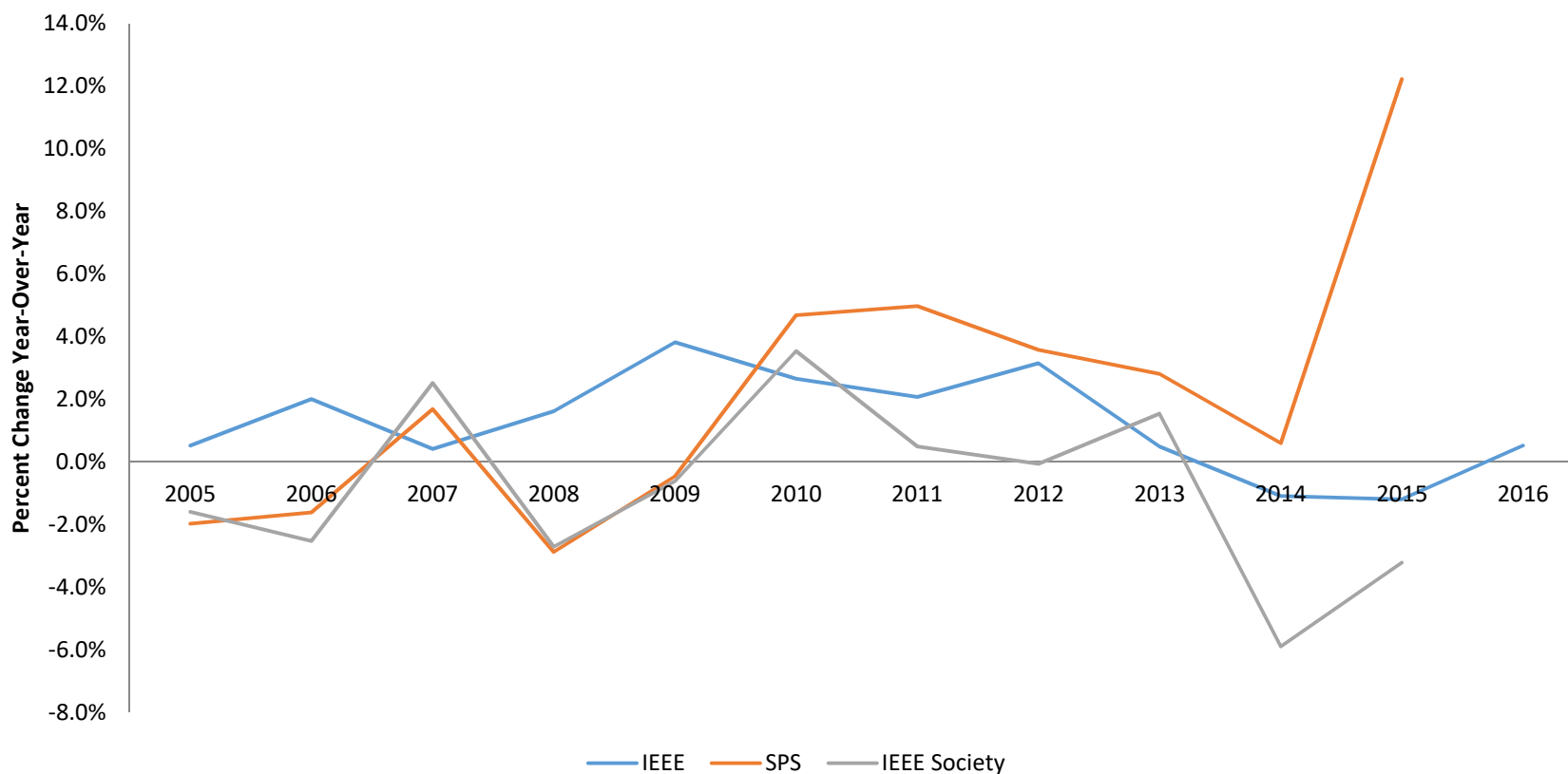# Publications: Recently Approved Journals

Financially Co-Sponsored

▶ Trans. on Computational Imaging (70%)

▶ Trans. on Signal & Info. Processing over Networks (70%)

Technically Co-Sponsored

▶ Control Systems Letters

▶ Life Science Letters
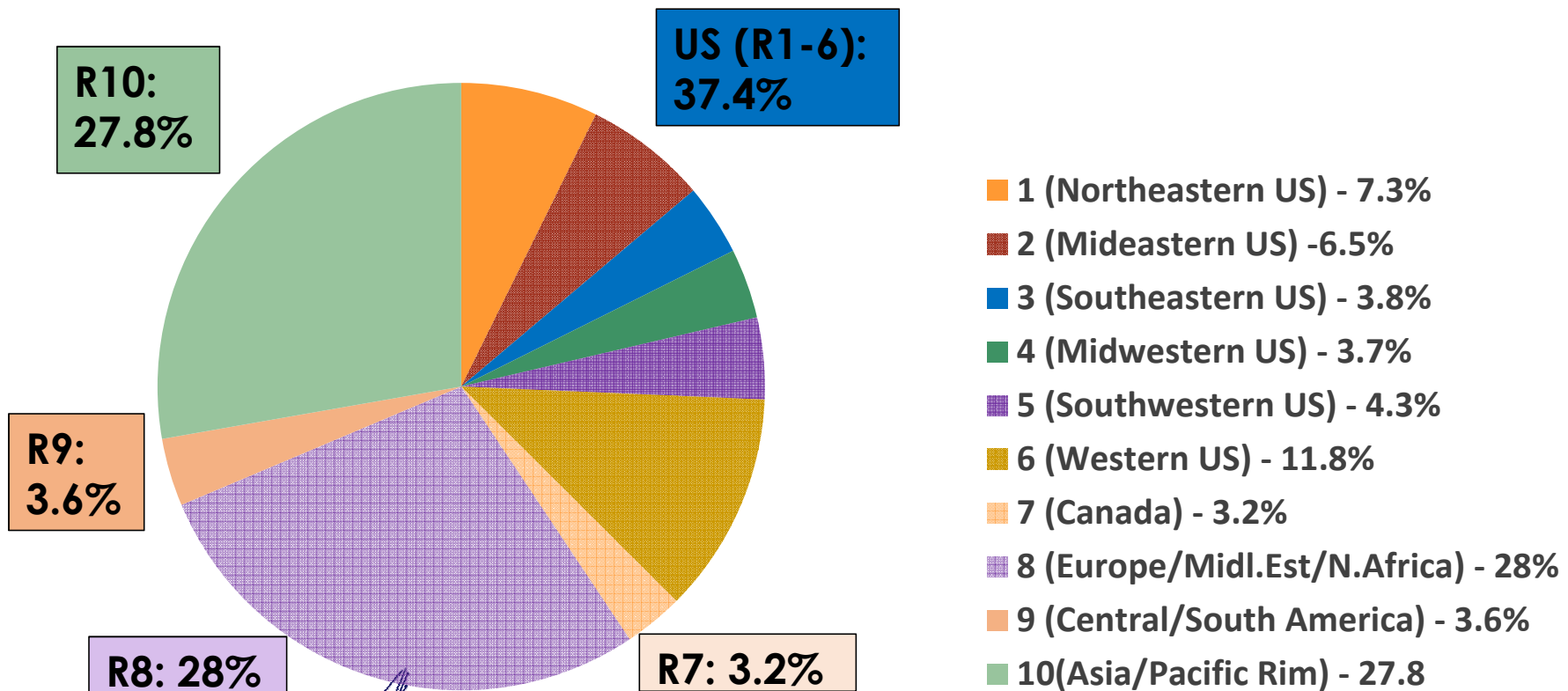
▶ Trans. on Cloud Computing

Membership: Changes in IEEE/Societies/ SPS Membership by %

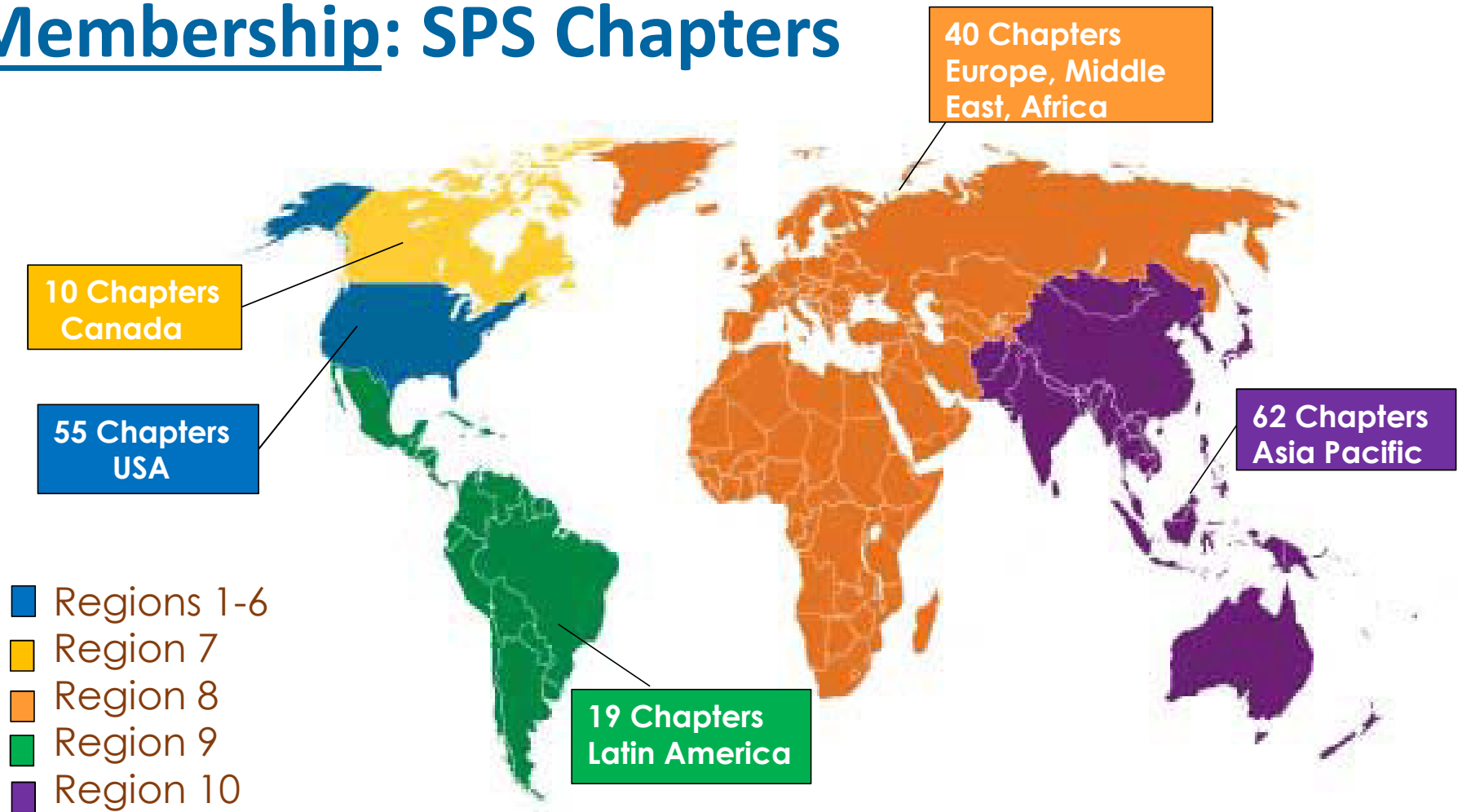Percent Changes in IEEE/SPS/Society Membership, 2005-2016

Membership: Regional Breakdown

▸ SPS is fourth largest technical society in the IEEE
▸ 17,834 members – Dec 2016

R10: 27.8%

US (R1-6): 37.4%

R9: 3.6%

R8: 28%

R7: 3.2%

■ 1 (Northeastern US) - 7.3%

■ 2 (Mideastern US) -6.5%

■ 3 (Southeastern US) - 3.8%

■ 4 (Midwestern US) - 3.7%

■ 5 (Southwestern US) - 4.3%

■ 6 (Western US) - 11.8%

■ 7 (Canada) - 3.2%

■ 8 (Europe/Midl.Est/N.Africa) - 28%

■ 9 (Central/South America) - 3.6%

■ 10(Asia/Pacific Rim) - 27.8

IEEE Signal Processing Society

IEEE

Membership: SPS Chapters

40 Chapters
Europe, Middle East, Africa

10 Chapters
Canada

55 Chapters
USA

62 Chapters
Asia Pacific

19 Chapters
Latin America

Regions 1-6
Region 7
Region 8
Region 9
Region 10

There are about 186 SPS chapters worldwide.

Membership: 2016 & 2017 New Chapters

1 New Chapter in 2017 (to date):

▸ Peru Chapter - Region 9

3 New Chapters in 2016:

▸ Indonesia Chapter - Region 10

▸ New Brunswick Chapter - Region 7

▸ Wuhan Chapter – Region 10

Membership: 2016 & 2017 New Chapters

1 New Student Branch Chapters in 2017:
- ▶ Motilal Nehru National Institute of Technology – Region 10

9 New Student Branch Chapters in 2016:
- ▶ Higher I A Sciences & Tech. (ISSAT Sousse) Biology - Region 8
- ▶ Indian Inst. of Information Tech-Allahabad – Region 10
- ▶ MES College of Engineering -Region 10
- ▶ Netaji Subhash Engineering College – Region 10
- ▶ Singapore University of Technology & Design – Region 10
- ▶ Trivandrum College of Engineering - Region 10
- ▶ Universidad Francisco De Paula Santander – Region 9
- ▶ Universidad Nacional de Ingenieria Lima – Region 9
- ▶ VELS University - Region 10

Membership: Chapter of the Year

▸ The Chapter of the Year Award is presented annually to a Chapter that has provided their membership with the highest quality of programs, activities and services. The award consist of a certificate and a check in the amount of $1,000 to support local chapter activities.

▸ **Recipients:**
  - **2016 – Gujarat Chapter**
  - 2015 – Gujarat Chapter
  - 2014 – Malaysia Chapter
  - 2013 – Italy Chapter
  - 2012 – Tainan Chapter
  - 2011 – Malaysia Chapter

Membership: Chapter Support

▶ **Distinguished Lecture Support** - $3,500 per Chapter annually.

▶ **Chapter Meeting Support**: - $500 support annually for coffee breaks and other small social gathering in conjunction with meetings per Chapter annually.

▶ **Member Driven Initiatives Program** – Encourages development of Chapter activities and funding is available. Program examples for funding :
seasonal schools, events for practicing engineers, meetings featuring industry executives, programs to get high school students interested in signal processing, design competitions for signal processing technologies,
events leading to creation of a new chapter, student branch or affinity groups, networking events with local industry, sister societies, professional engineering associations, and standardization bodies, etc.

▶ **Chapter of the Year Award**

▶ **Chapter Certification**, which support to attend ICASSP Chapter Chairs Meeting and Chapter Growth Reward.

▶ **Development of a Distinguished Industry Speaker Program**

IEEE Signal Processing Society

�IEEE

Membership: Seasonal Schools

▶ **Main objective** of Seasonal Schools in Signal Processing Program (established in 2010)

- Membership development for students, practitioners, early stage researchers
  http://signalprocessingsociety.org/professional-development/seasonal-schools/

▶ **Upcoming Seasonal Schools:**

Dates	Location	Topics
12-22 Feb. 2017	New Delhi, India	2017 IEEE SPS Winter School on Machine Learning for Biometrics
5-8 July 2017	Singapore	2017 Summer School on Visual Image Search and Visual Analytics (VISVA)
8-11 July 2017	Hong Kong	2017 IEEE MMSP Summer School on Emerging Techniques for Multimedia Signal Processing
4-8 Sept. 2017	Capri, Italy	2017 Summer School on Signal Processing Meets Deep Learning

Membership: Resource Center

▶ **Resource Center:** formally known as *SigView* is an online library of tutorials, lectures, presentations and more   . *(http://rc.signalprocessingsociety.org/)*

▶ An open benefit for all SPS members, to create, host, link and distribute videos of lectures, tutorials or other media. It puts tutorials created by the world's leading signal processing experts at your fingertips.

▶ SigView Chief Editor: John McAllister

▶ Keeping up-to-date with social media:

     IEEE Signal Processing Society Group

     www.facebook.com/ieeeSPS

     @SPSotl

Membership: SigPort

Signal Processing Repository – www.sigport.org

▶ **Serving Conferences** by hosting presentation slides and posters
  - Serving conference attendees *before*, *during* and *after* the conferences

▶ **Providing an early citable access and high visibility**
  - Total number of downloads: **134,898**
  - ICASSP'16 – **125.9** average downloads per presentation/poster
  - Globalsip'16 – **52.9** average download per presentation/poster

▶ **Supporting SPS activities**

Signal Processing Cup Competition Project Report
@ SigPort
Average download: 122

Signal Processing Magazine Student Design Project Series
@ SigPort
Average download: 92

Membership: Student Services

▸ **Student Career Luncheon**:
- for students and companies to meet
- The fifth Luncheon held at ICASSP 2017 on 8 March
- Approx. 185 students/fresh graduates and about 11 companies registered to attend the event.

▸ **IEEE SPS Travel Grants**: to attend ICASSP, ICIP and GlobalSIP. http://www.signalprocessingsociety.org/membership/sps-travel-grants/

Membership: Student Services

- **"Signal Processing Cup" Competition for Students:**
  - Grad & undergrad students form teams to solve a challenging real-world problem using signal processing techniques and methods.
    2017 Competition title**: Real-Time Beat Tracking Challenge**

- Sponsored by MathWorks: financial support and software!

  - Fourth event - ICASSP 2017 on 5 March
  - 33 teams registered across 18 countries
  - 21 teams submitted their work for the competition
  - 3 teams were selected for the final.

- New: Video and Image Processing Cup will be held for the first time at ICIP 2017. The Competition title is: **Traffic Sign Detection Under Challenging Conditions**

Membership:

▶ Women in Signal Processing Luncheon

- to foster support and offer networking opportunities by engaging women across the signal processing profession to exchange ideas and experiences from academia, research and industry in an informal setting.

- Tuesday, March 7, 12:00-14:00

- Luncheon features a presentation by Dr. Athina P. Petropulu

▶ Young Professional Reception

- Network with your peers and professionals from industry in a great atmosphere.

- Monday, March 6, 17:00-19:00

Membership: WIKI Project

▶ Wikipedia has become one of the most widely-used resources on signal processing

  - Nyquist–Shannon sampling theorem page is viewed on average 1000x a day

  - Editing of a Wikipedia article can easily exceed the impact and visibility of writing a paper

▶ **Wikipedia Information**

  - http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Signal_Processing

  - Under "Signal Processing", there are 273 pages and 16 categories.

  - Under those 16 main categories, there are 1068 pages and another 87 categories.
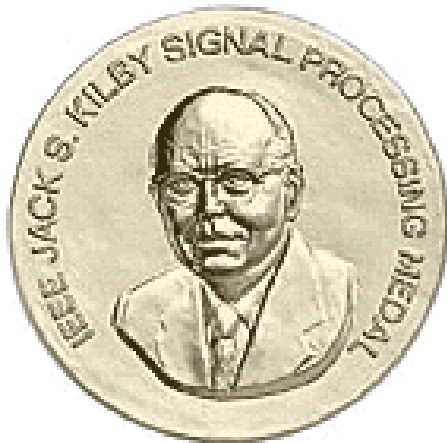
Awards: New Society Awards

Industry focus:

▸ Industrial Leader Award

▸ Industrial Innovation Award

▸ Conference Best Paper Award for Industry

Regional/Chapter focus:

▸ Meritorious Regional/Chapter Service Award
(IEEE approval pending)

Awards: IEEE Level

▶ IEEE Jack S. Kilby Signal Processing Medal

▶ IEEE James A. Flanagan Speech and Audio Processing Award

▶ IEEE Fourier Award for Signal Processing

Awards: Society Level

- **SPS Major Awards**
  - Education Award
  - Meritorious Service Award
  - Meritorious Regional/Chapter Service Award (IEEE approval pending)
  - Industrial Leader Award (newly approved)
  - Industrial Innovation Award (newly approved)
  - Society Award
  - Technical Achievement Award

- **SPS Paper Awards**
  - Best Paper Award
  - Conference Best Paper Award for Industry (newly approved)
  - Donald G. Fink Overview Paper Award (revised name, pending IEEE approval)
  - Signal Processing Letters Best Paper Award
  - Signal Processing Magazine Best Paper Award
  - Signal Processing Magazine Best Column Award
  - Sustained Impact Paper Award
  - Young Author Best Paper Award

New Foundation Fund

▶ The Society established a dedicated IEEE Foundation Fund, called the Signal Processing Student and Young Professional Fund (SP-SYP).

▶ Depends on Funding from Industry

▶ SP-SYP Fund uses are for:
- Travel grants for Students and Young Professional to attend a Signal Processing conference or other educational experience.

- Special events to promote Signal Processing to Students and Young Professionals.

- Scholarships and Fellowships for students pursuing a career in Signal Processing.

- Production of educational media in multiple formats, aimed to educate and promote Signal Processing to students and young professionals.

Volunteering Opportunities

▸ Many Educational and Networking Activities in Your Chapter

▸ Accept to Review papers for journals/conferences

▸ Organize conferences, forums and seasonal schools

▸ Propose tutorials for online education program

▸ Get involved in technical committees

  ▸ Practically any SPS member and even some non-members can become Affiliate Members (non-elected, non-voting members) of a particular TC

▸ Volunteer for elected leadership positions

▸ (more)

Where to Find This Talk?

▶ Go to IEEE Signal Processing Society at
  http://www.signalprocessingsociety.org/

  - Under "Our Story", see "State of the Society"

  - Additional slides at end provide more information

What Can We Do for You?

- **President**:   Rabab Ward
- **President-Elect**: Ali H. Sayed
- **Vice President-Membership**: Nikos Sidiropoulos
- **Vice President-Conferences**: Carlo Regazzoni
- **Vice President-Publications**: Thrasyvoulos N. Pappas
- **Vice President-Technical Directions**: Walter Kellermann