

IEEE Information Theory Society Newsletter



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EDITOR: Salim El Rouayheb

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including the past three presidents, the BoG members, Newsletter Editorial Board, Matt Lafleur, and of course, all those who contributed to the Newsletter. Special thanks also go to my former student Rawad Bitar and current student Ghadir Ayache, for their great assistance in putting together these issues. I want to wish the best for my successor, Changho Suh, and congratulations on his new appointment.

As a reminder, Announcements, news, and events intended for both the printed newsletter and the website, such as award announcements, calls for nominations, and upcoming conferences, can be submitted at the IT Society website <http://www.itsoc.org>. Articles and columns can be e-mailed to Changho Suh at chsuh@kaist.ac.kr with a subject line that includes the words "IT newsletter."

The next few deadlines are:

Jan 30, 2020 for the issue of March 2021.

April 10, 2020 for the issue of June 2021.

Please submit plain text, LaTeX, or Word source files; do not worry about fonts or layout as this will be taken care of by IEEE layout specialists. Electronic photos and graphics should be in high resolution and sent as separate files.

Salim El Rouayheb

IEEE Information Theory Society Newsletter

IEEE Information Theory Society Newsletter (USPS 360-350) is published quarterly by the Information Theory Society of the Institute of Electrical and Electronics Engineers, Inc.

SYSU Workshop on Network Information Theory and Coding

The Sun Yat-sen University (SYSU) Workshop on Network Information Theory and Coding went well in the University's Guangzhou South Campus in Guangzhou, China on September 26, 2020. This workshop was organized by the IEEE Information Theory Society Guangzhou Chapter, co-sponsored by Sun Yat-sen University and the Chinese Institute of Electronics Information Theory Society. More than 50 scholars and industry partners from mainland China participated the Workshop. A few others from Hong Kong, including the first speaker Raymond Yeung of CUHK, participated online due to travel restrictions. The Guangzhou Chapter experimented resuming the first onsite conference after the outbreak of COVID-19. We were pleased it went well.

Network coding is a technique to improve the throughput of information flow by allowing coding on received data packets, instead

of traditional receive-and-forward, at intermediate nodes, which has been widely used in distributed storage, coded caching, etc. This workshop aims to provide a platform for scholars in South China to exchange new research results on network information theory and coding, which will be beneficial for the community, Universities and the graduate students of the area. The workshop was chaired by Li Chen, a Professor of Sun Yat-sen University and also the chair of Guangzhou Chapter.

There were seven invited talks in this workshop, with a coverage of multi-source network coding, distributed storage, coded caching, subspace codes, etc. In the morning session, Raymond Yeung of the Chinese University of Hong Kong presented recent results in symmetric multilevel diversity coding system (SMDCS), in which an explicit



IEEE Information Theory Society Aaron D. Wyner Distinguished Service Award

The IT Society Aaron D. Wyner Service Award honors individuals who have shown outstanding leadership in, and provided long standing exceptional service to, the Information Theory community.

NOMINATION PROCEDURE: Nominations and letters of endorsement must be submitted by March 1, 2021. All nominations should be submitted using the online nomination forms. Please see <http://www.itsoc.org/wyner-award> for details.

IEEE Fellow Program

Do you have a colleague who is a senior member of IEEE and is deserving of election to IEEE Fellow status? If so, please submit a nomination on his or her behalf to the IEEE Fellow Committee. The deadline for nominations is March 1, 2021.

IEEE Information Theory Society Board of Governors Meeting

Location: Zoom Remote Meeting

Date: June 21st, 2020

Time: The meeting convened at 10:00 am EST; the meeting adjourned at 4:00 pm EST

Meeting Chair: Aylin Yener

Minutes taken by: Lara Dolecek

Meeting Attendees: Erik Agrell, Erdal Arikan, Matthieu Bloch, Suhas Diggavi, Alex Dimakis, Lara Dolecek, Stark Draper, Elza Erkip, Meir Feder, Christina Fragouli, Andrea Goldsmith, Camilla Hollanti, Sid Jaggi, Tara Javidi, Vijay Kumar, Brian Kurkoski (#), Matt LaFleur (#), Olgica Milenkovic, Prakash Narayan, Henry Pfister, Vince Poor, Joachim Rosenthal, Parastoo Sadeghi, Anand Sarwate (#), Igal Sason, Emina Soljanin, Daniela Tuninetti, Emanuele Viterbo (#), Aaron Wagner, Aylin Yener, Wei Yu

All attendees joined remotely via Zoom; non-voting attendees are denoted by (#).

Business conducted between meetings: The following votes were conducted by email between the February 2020 Information Theory Society (ITSoc) Board of Governors (BoG) meetings and this meeting:

1) In February 2020, the following motions were issued:

- a) To approve Richard Dale Wesel as an Associate Editor for Coding Techniques in the IT Transactions.
- b) To approve Achilleas Anastasopoulos as an Associate Editor for Communications in the IT Transactions.
- c) To approve Arian Maleki as an Associate Editor for Signal Processing in the IT Transactions.

The motions passed.

2) In March 2020, the following motion was issued:

To approve Martina Cardone as the Chair of the Student and Outreach Activities Subcommittee.

The motion passed.

3) In March 2020, the following motion was issued:

To postpone ITW 2020 from September 2020 to Spring 2021 with new dates to be negotiated between the general chairs and the venue.

The motion passed.

4) In March 2020, the following motion was issued.

To suspend the Distinguished Lecturer Program effective immediately until further notice, to revisit the suspension decision as soon as the COVID-19 situation starts to improve globally, and to potentially extend the current DLs' terms to offset the suspension of the program.

The motion passed.

5) In March 2020, the following motion was issued.

To re-open the nominations for individual society awards until April 6, 2020. The impacted awards are Massey (deadline March 15), Shannon (deadline March 1) and Wyner (deadline March 1).

The motion passed.

6) In March 2020, the following motion was issued.

To hold ISIT 2020 as a virtual conference on the same dates (June 21-26), in a manner that resembles the in-person experience as much as possible. The organizers will work towards this goal in consultation with officers and relevant committee chairs (outreach, awards etc.). The organizers will come up with new registration fees to reflect the new financial model.

The motion passed.

7) In April 2020, the following motions were issued:

- a) To approve the minutes from the February 2020 meeting.
- b) Motion 2: (from the School Subcommittee): "We request the ITSoc BoG allow the holding of the 2020 IEEE North American School for Information Theory, currently scheduled for University of British Columbia in July 2020, to be deferred to the summer of 2021 and for the deferred school to be supported at the same level of \$10,000 USD as was originally allocated by the BoG at the BoG meeting in July 2019."
- c) Motion 3: (from the School Subcommittee): "We request the ITSoc BoG allow the holding of the 2020 IEEE East Asian School for Information Theory, currently scheduled for Seoul University in August 2020, to be deferred to the summer of 2021 and for the deferred school to be supported at the same level of \$20,000 USD as was originally allocated by the BoG at the BoG meeting in July 2019."

The motions passed.

8) The following motion was issued in May 2020:

newsletter costs decreased by \$12K; dues increased by \$2.8K; and committees overspent by \$5.5K. Aaron next went into more detail regarding the Transactions trends, and explained how at the time of ISIT 2018 in Vail the outlook looked dire, but that the numbers have improved since. He also clarified that this is not an accounting fluke as there is more money across the board in Transactions.

He then went over the Special Projects for 2019, totaling \$264.5K in the budget, specifying for each project, the leader of the project and the associated cost. Of the budgeted \$264.5K, \$175K have been spent, as some ISIT 2019 related projects are still being processed.

Next, Aaron went over the 2020 General Funds. At the time of ITA 2020, the expected budgeted surplus was \$243K. As of this meeting, it is \$232K. The changes are due to cancellations of certain in-person events that increased the expected surplus, and new operational costs of JSAIT and reduced membership fees that decreased the expected surplus. Regarding the 2020 Special Projects, Aaron stated that some previously approved projects have become inoperative due to the pandemic. As a result, the sum total for the remaining projects is \$65K. Aaron encouraged the members to provide additional ideas for 2020 Special Projects and to start thinking about possible projects for 2021.

Next, Aaron discussed the status of the Padovani Fund. He stated that Roberto Padovani generously donated \$110K over 5 years, and that the Society is permitted to spend \$10K/year on Schools. He asked the Board whether we should think of this as a short-term gift to effect an immediate impact or a self-sustaining endowment. He stated that the IEEE Foundation treats it as a gift to be used until spent, whereas we treat it operationally as an endowment, and that this conflict creates issues. A BoG member suggested that Roberto Padovani be brought into the loop regarding this matter. Another BoG member suggested to make it an endowment for raising visibility. President Yener stated that the detailed discussion is to be deferred to the October meeting.

Future of the Information Theory Society (FITS) Initiative—Aylin Yener and Matthieu Bloch

Next presentation was the FITS report provided by President Yener and Matthieu Bloch. President Yener went over the executive summary that included the need for a unified and long-term online presence of ITSoc, unified portal for all our online activities, and calls for renewed investment in web technologies. President Yener thanked the Ad Hoc Committee members: Erik Agrell, Matthieu Bloch, Salim El Rouhayeb, Brian Kurkoski, Henry Pfister, Anand Sarwate, Aylin Yener, and Wei Yu, for their hard work in preparing the report. She went over the current situation and vision, stating that while we won't go back to the business as usual, the current crisis has created an opportunity to think forward and to create a unified FITS vision for the Society.

In terms of realizing the vision, Matthieu then identified four short term goals: 1) IEEE authentication, 2) Hosting multimedia resources, 3) Video conferencing integration, and 4) Support for events. Regarding IEEE authentication, a new Single Sign On was proposed to improve membership value. Regarding hosting of multimedia resources, the proposal was to explore alternative media solutions beyond

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The motion passed.

Upon a question from a BoG member regarding how long the upgrade will take, Brian stated that 3-4 months is likely feasible.

After a short break, the meeting resumed.

EiC IEEE Transactions on Information Theory—Igal Sason

Next presentation was given by Igal Sason in his capacity as the Editor-in-Chief of the IEEE Transactions on Information Theory. Igal stated that there are currently 60 associate editors, and that there is a need to add more. He then presented the 7 candidates in the needed areas. A BoG member asked about the gender and geographic diversity of the candidates. Igal clarified that among the candidates, 1 is female, 2 are from Asia, 2 are from Europe, 1 is from Israel, and the rest are from the US.

Motion was issued for each of the following candidates.

Motion: To elect Claude Carlet as an Associate Editor for Sequences.

Motion

re-negotiated, or potentially have the venues changed to the university setting. Vijay stated that he will communicate back with the committee and will update the board in the near future.

IEEE BITS The Information Theory Magazine—Christina Fragouli

Next presentation was given by Christina Fragouli in her capacity as the Chair of the Steering Committee for the new IT magazine. She started off by thanking committee members for their service. She went over the timeline of the magazine launch, highlighting that in February 2020 Phase II documents were reviewed and a positive TAB decision was made. EiC selection is scheduled for Summer 2020, and the first publication is scheduled for 2021. She stated that the magazine is ready to start and that the goal is to increase the visibility of our field and community.

The following motions were issued:

Motion: To elect Robert Calderbank as the inaugural Editor in Chief of the IT Magazine.

The motion passed.

Motion: To approve \$15K for the IT Magazine to start operations such as creating a logo and starts promotions.

The motion passed.

Membership Committee—Christina Fragouli

Next presentation was also given by Christina Fragouli, this time on the behalf of the Membership Committee. Christina stated that upon careful consideration of the membership committee, the Chapter of the Year was awarded to the North Macedonia chapter.

Next, Christina discussed the status of the Distinguished Lecturers (DLs), Padovani and Goldsmith lecturers. She first recalled that a motion was passed on March 23, 2020 to suspend the DL program until further notice.

The following motions were presented.

Motion: To suspend the DL program until further notice.

attention of researchers throughout the world due to their capacity-approaching performance. Consistent with his reputation for ingenuity and simplicity, Kamil achieved his remarkable results on LDPC convolutional codes by a clever, but non-obvious, “unwrapping” of the parity-check matrix of an LDPC block code into a diagonal (convolutional) form, in the process achieving a substantial “convolutional gain” in performance without added decoding complexity. In recognition of his contributions to this area, Kamil and his co-authors were awarded the 2012 IEEE Information Theory Society and Communication Society Joint Paper Award.

Characteristic of all Kamil’s work was that his code constructions and decoding algorithms were novel and simpler than earlier ones. They have played a major role in forming the present theoretical understanding of encoding and decoding processes. Kamil was also a stickler for mathematical precision, often offering constructive criticism of results that made claims without rigorous proof. In this respect, he sometimes displayed a playful sense of humor by drawing distinctions between “strong proofs” and “weak proofs”.

Kamil played a major role in guiding Soviet communication theory. During his 28 years at the IPIT he worked with most of its major players. At the same time he maintained liaisons with Western scientists through trips and correspondence.

Kamil showed professional leadership in his role as the instrumental organizer from the Russian side of the Joint Swedish-Soviet Workshops on Information Theory. This series, totaling seven altogether, began in 1983, and alternated between sites in Russia and Sweden. These workshops were of exceptionally high quality and attracted first class researchers from all over the world. They were the largest single interaction between Soviet and Western communication theorists during the Cold War period.

Kamil is survived by his widow Ira along with his two children, Dima and Valja, and their families.

Rolf Johannesson, Professor Emeritus, Lund Univ., Sweden, johannessonrolf46@gmail.com

Daniel J. Costello, Jr., Professor Emeritus, Univ. Notre Dame, USA, daniel.j.costello.2@nd.edu

Irina E. Bocharova, Assoc. Professor, ITMO univ., St.-Petersburg, Russia, irina.bocharova@ut.ee

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Michael Lentmaier, Assoc. Professor, Lund Univ., Sweden, michael.lentmaier@eit.lth.se

President’s Column *(continued from page 1)*

have been able to start a number of initiatives, particularly in the digital domain, that will continue to flourish in the coming years and have long-term positive impact in our community. All indications are that the society is in a better place than it was at the beginning of the year, and that is the best outcome any president can hope for.

As I proudly hand over the leadership to Wei, I would like to conclude my last column with a few personal notes. I remain enthusiastic about serving our society and the profession both, and will continue to do so in my roles as past president and in others including digital initiatives and technical posts such as editorships, conferences and evaluations. I continue to believe that professional service is not about building resume, but about building community, and should be taken on with that understanding. For me, this year was a departure from the past, in that, in contrast to my previous posts where I have been able to balance my day job and volunteer service, this year, most of my awake moments needed to

Recent Publications

IEEE Transactions on Information Theory

Table of content for volumes 66(9), 66(10), 66(11), 66(12)

Vol. 66(9): Sep. 2020.

CODING THEORY AND CODING TECHNIQUES

<i>G</i> , <i>m</i> , <i>L</i> , <i>m</i> , <i>M. J</i> , <i>m</i>	ϵ -MSR Codes: Contacting Fewer Code Blocks for Exact Repair	6749
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<i>Z</i> , <i>H</i> , <i>C. D</i>	Two Families of Optimal Linear Codes and Their Subfield Codes	6872
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<i>H. M</i>		



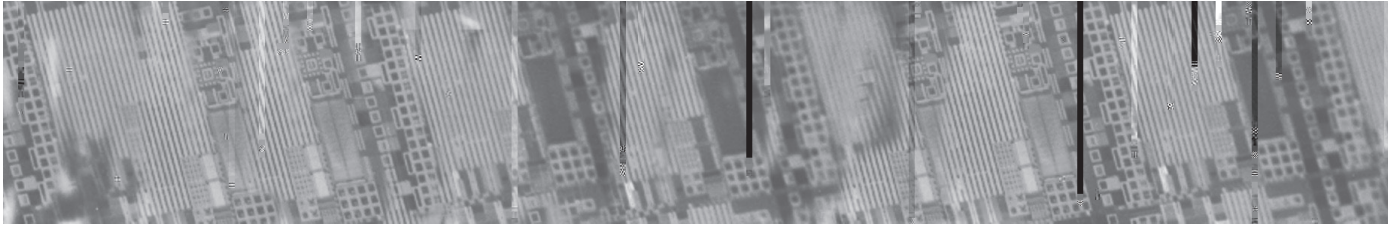
Henry Pfister

- Communication and Storage Coding
- Coding Theory
- Coded and Distributed Computing
- Combinatorics and Information Theory
- Communication Theory
- Compressed Sensing and Sparsity
- Cryptography and Security
- Detection and Estimation
- Deep Learning for Networks
- Distributed Storage
- Emerging Applications of IT
- Information Theory and Statistics
- Information Theory in Biology
- Information Theory in CS
- Information Theory in Data Science
- Learning Theory
- Network Coding and Applications
- Network Data Analysis
- Network Information Theory
- Pattern Recognition and ML
- Privacy in Information Processing
- Quantum Information Theory
- Shannon Theory
- Signal Processing
- Source Coding and Data Compression
- Wireless Communication

extra page containing references only. Submitted manuscripts should be of sufficient detail to be evaluated by expert reviewers in the field. Full information about paper submission

Notification of acceptance: March 26, 2021







ITW2021

October 17–21, 2021 in Kanazawa, Japan

The 2021 IEEE Information Theory Workshop (ITW2021) will be held October 17-21 at Kanazawa Bunka Hall, Kanazawa, Japan. Kanazawa is located in the middle of Honshu, the main island of Japan, and can conveniently be reached by train or airplane from Tokyo. Bordered by the Sea of Japan and the Japanese Alps, Kanazawa was also recognized as the world's first UNESCO Creative City in the field of crafts and folk art. As a traditional city, Kanazawa hosts many historical places such as the Kenrokuen Garden, one of the "Three Great Gardens of Japan"; the Myoriji "Nijna Temple" with its many secret passages and hidden doors; and the Higashi Tea House District surrounded by historical shops and homes. The Kanazawa Bunka Hall venue is centrally located in Kanazawa. While admiring the traditional architecture, attendees will be able to enjoy the delicate gold leaf arts and lacquerware, as well as the delicious seafood.

Call for Papers

Interested authors are invited to submit papers describing novel and previously unpublished results

Conference Calendar

DATE	CONFERENCE	LOCATION	WEB PAGE	DUE DATE
December 08–11, 2020	IEEE Global Communications (GLOBECOM)	8–10 December 2020: In-person (Taipei, Taiwan) 7–11 December 2020: Virtual	https://globecom2020.ieee-globecom.org	Passed
January 10–13, 2021	ACM-SIAM Symposium on Discrete Algorithms (SODA21)	Virtual Conference	https://www.siam.org/conferences/cm/conference/soda21	Passed
February 7–12, 2021	The Information Theory and its Applications Workshop (ITA)	San Diego, California	https://ita.ucsd.edu/workshop/#location	—
March 24–26, 2021	55th Annual Conference on Information Sciences and Systems (CISS)	Virtual	https://ciss.jhu.edu/	December 14, 2020
March 29–April 1, 2021	IEEE Wireless Communications and Networking Conference	Nanjing, China	https://wcnc2021.ieee-wcnc.org	Passed
April 11–15, 2021	IEEE Information Theory Workshop (ITW) 2020	Riva Del Garda, Italy	http://itw2020.it/welcome.html	Passed
May 10, 2021	The 4th Age of Information Workshop (AoI'21)	Virtual	https://infocom2021.ieee-infocom.org/age-information-workshop	Passed
June 21–25, 2021	51st Annual ACM Symposium on the Theory of Computing (STOC)	Rome, Italy	http://acm-stoc.org/stoc2021/visa.html	Passed
June 28–30, 2021	North American School of Information Theory (NASIT)	Vancouver, Canada	https://www.itsoc.org/conferences/schools/nasit2019	—
July 11–16, 2021	IEEE International Symposium on Information Theory	Melbourne, Australia	https://2021.ieee-isit.org	January 10, 2021

Major COMSOC conferences: <http://www.comsoc.org/confs/index.html>