

IEEE Information Theory Society Board of Governors Meeting

Location: Chicago, USA

Date: 7 October 2017

Time: The meeting convened at 9am CDT (GMT-5); the meeting adjourned at 1:27pm.

Meeting Chair: Rüdiger Urbanke

Minutes taken by: Stark Draper

Meeting Attendees: Suhas Diggavi, Alex Dimakis, Stark Draper, Michelle Effros, Elza Erkip, Christina Fragouli*, Tara Javidi, Matt LaFleur#, Ubli Mitra, Pierre Moulin, Krishna Narayanan*, Alon Orlitsky, Anand Sarwate#, Emina Soljanin, Daniela Tuninetti, Rüdiger Urbanke, Michele Wigger*, Aaron Wagner#, Greg Wornell

(Remote attendees denoted by *, non-voting attendees by #.)

Business conducted between meetings: Between the Jun. 2017 and Oct. 2017 Information Theory Society (ITSoc) Board of Governors (BoG) meetings, a number of items of business were conducted and voted upon by email. These items and results are summarized below:

1. Elza Erikp was elected to service as President of ITSoc for 2018.
2. Emina Soljanin was elected to serve as first Vice-President of ITSoc for 2018.
3. Helmut Bölcskei was elected to serve as second Vice-President of ITSoc for 2018.
4. **Motion:** A motion was made to approve the revised budget for ISIT 2019. The motion passed.

At 9:00am local time, ITSoc president Rüdiger Urbanke called the meeting to order. He started by reviewing the agenda.

Motion: A motion was made to approve the agenda. The motion was passed unanimously.

Motion: A motion was made to approve the draft minutes of the Jun. 2017 ITSoc BoG meeting. The motion was passed unanimously.

- 1) **President's Report:** Rüdiger presented the President's report. He first reviewed the presidential chain, thanking retiring Second Past President Michelle Effros for her work and welcoming Helmut Bölcskei to the presidential chain. BoG elections are ongoing and will conclude on 13 October. Rüdiger next reviewed the agenda, recapping the many ongoing initiatives and the review of society bylaws that has been conducted by Michelle Effros. He discussed new Society chapter that have been formed and are in the process of being formed, as well as the upcoming 5-yearly review of the society by the IEEE. In the review he expects two issues to be raised. The first of these is that there is no official "strategic plan" for the Society, a point raised in the last review. The second is that there is no professional affiliations program, i.e., ITSoc has no outreach aimed at young professionals working in industry. He contrasted this with outreach efforts aimed at student and our mentoring programs targeted at young faculty. Rüdiger's penultimate item was a discussion of where and when the BoG meetings will be held in 2018. The first meeting will be held on the weekend prior to the UCSD ITA workshop, on Sunday 11 February. The second meeting will be at the ISIT. The third, Chicago, meeting typically has the lowest attendance. So, a discussion ensued about whether we should conduct this meeting remotely, unless there are major topics to be discussed. Rüdiger concluded his report by discussing the process by which BoG members are nominated, and how it can be modified to broaden the geographic diversity of BoG members.

- 2) Treasurer's Report:** Treasurer Daniela Tuninetti next presented her report. We still have money for new initiatives. Under the "50% rule" half of any surplus in year n can be used in year n+1 for new initiatives. This amounts to \$4.6k USD for use in 2017, which to date is unused. Under the "3% rule" up to 3% of society reserves in year n can be used for new initiatives in year n+1. This latter spending is subject to IEEE approval. E.g., for 2017 the society asked for \$140k USD for new initiatives and the IEEE approved \$105k USD of spending. The \$105k was targeted to continue the broad outreach efforts initiated in 2016. To date about \$50k has been spent. Turning to the actuals of the budget, Daniela first noted that none of the 2017 events have yet closed their books. The net forecast for Q2 was negative \$95k USD. (This wasn't a problem because it includes \$105k USD of spending under the 3% rule so the operational net was positive, which is what the IEEE wants to see.) Due to under-spending on new initiatives, the forecast increased from negative \$95k USD to negative \$30k USD. A discussion ensued on how to increase spending on new initiatives by the end of 2017.

Daniela next turned to the 2018 budget. Hitting IEEE targets would result in a budget with a total net income of \$22k USD. However, ITSoc has been working toward developing zero-surplus budgets. Therefore the draft ITSoc budget has a net income of \$750. Drilling down into the budget Daniela noted that we asked for \$100k USD for new initiatives. However, at the first level of IEEE review (of which there are two), that was reduced to \$68k, which may be further reduced at the final review. All the new initiatives that are ongoing (outreach, book project, etc) are three-year initiatives for which 2017 is year two. The BoG recalled that, as was also discussed at the ISIT meeting, schools are no longer new initiatives. (If the design or content of a school is materially changed it could re-qualify as new initiatives.) A clarifying question was asked whether if we have an operational net, but don't make the IEEE's target that all societies deliver a 2.5% operational net profit, whether that would be a red mark. (Recall ITSoc aims for a zero-surplus.) As far as Daniela understands, only if a society has an operational net loss would IEEE have a problem. In conclusion, once the 2018 budget is approved, Daniela asked people to be ready to spend starting on new initiatives on 1 Jan. 2018.

- 3) Conference Committee:** Due to communication difficulties this report, while on agenda, was not delivered.
- 4) Nominations and Appointments Committees:** Nominations and Appointments (N&A) Committee Chair Michelle Effros first reviewed the current composition of the committee, the appointment process, and the duties thereof. She reviewed the process of forming committees while satisfying the constraints on appointments specified in the Bylaws and listed new appointments to the various committees.
- 5) Constitution and Bylaws Committee:** Michelle Effros chairs this Committee as part of her duties as Second Past President. As Michelle outlined to the BoG at the June meeting, there are a number of confusing sections in the Constitution and Bylaws, and a number of internal inconsistencies. Michelle has been reviewing and cleaning up these documents, starting with the Bylaws. Her goal in the current round of changes was not to change any policy, but simply to clarify aspects of the documents that are difficult to decipher and to remove inconsistencies. Michelle walked through the proposed changes with the BoG. The BoG approved all proposed changes. She also raised two points that'll need attention by next year's N&A committee: term limits (appointed vs elected), and whether paper award nominations should come from the Publications committee (consisting of the editors and associate editors of the Transactions, the editor of the Newsletter, and ex-officio members).

There was problematic wording in the Bylaws regarding term limits. The prior Bylaws limit the number of terms BoG members can serve continuously to two; the only exception is for

members serving in the presidential shift-register. However, appointed members of the BoG (secretary, treasurer, Conference Committee Chair) are appointed annually and traditionally serve for three years, i.e., three terms. Further, appointed members have often then been elected to the BoG as regular members after their appointed term(s). The proposed (and accepted) change to the Bylaws applies the two-term-limit only to elected members of the BoG, thereby making the document consistent with accepted and long-standing practice. There was discussion of changing term limits to a fixed number of years, or to removing term limits altogether. Since either of these ideas would mean a change in policy, they were not included in the revision but instead remain topics for further discussion.

Michelle next turned to the question of how to improve the process of garnering nominations for paper awards, especially the ITSoc Paper Award. The current Bylaws put the onus of generating paper nominations on the Publications Committee. However, this Committee is heavily loaded with running the Transactions, and often the Awards committee receives few nominations. Michelle then led a discussion on what alternative nomination processes might be re-designed. An immediate clarifying question from the BoG asked how detailed nominators must be. Michelle responded that there is no formal requirement — even a one-sentence nomination is allowed — though Michelle certainly encourages nominators to submit solid, well-considered and detailed nominations. Former members of the Awards Committee voiced the opinion that responsibility for fostering nominations should be moved from Publications to the Awards Committee. For example, once the Committee has completed its work surrounding the selection of that year's best paper they could then, in the second half of the year, foster nominations for the following year. This would be better than having the next year's committee foster nominations. This follows because the Awards Committee is constituted on 1 January and must make its recommendation to the BoG by 1 March, thus there is not much time in-between to identify candidate papers.

- 6) **Online Committee:** Online Committee Chair Anand Sarwate update the BoG on his committee's work. One point of progress is getting the website colors to match IEEE standards (!). A second has been to get all sorts of letter accents displayed correctly. Anand reviewed the corpus of ITSoc members that subscribe to News & Events (roughly 25%) versus the mailing list of the Table-of-Contents (TOC) (100%). The former is an opt-in list while the latter is opt-out. He reminded the Awards Committees that he could really use a short blurb describing each award winner. He could post this text on the website, the better to publicize the accomplishments of ITSoc members. Anand then reviewed upcoming goals of the committee, a number of which could be assisted by willing volunteers. If readers are interested in working with the Online Committee, please contact Prof. Sarwate (anand.sarwate@rutgers.edu).
- 7) **Outreach Committee Mentoring Program:** Outreach Committee Chair Aaron Wagner reviewed the activities of the committee. The Committee has two main charges. The first is running the mentoring program. The second is event planning. Aaron first reviewed the current state of each.

The mentoring program matches junior ITSoc members with senior members. After the initial match there are few formal follow-on activities. Based on anecdotal evidence the Committee inferred that matching works well in a few cases but, on the whole, there is little activity between pairings. To quantify the accuracy of such anecdotes, the committee recently conducted a survey of participants. While the survey showed a higher level of satisfaction among participants than than Committee anticipated, the survey results did indicate the need to reexamine the program. Generally, mentors are busy, its hard for pairings to find times to connect, and often a network of mentors is needed. In terms of

event planning, the Committee is trying to move towards a set of recurrent events. For such events the template would be held constant, saving on organizing.

The need for more mentoring and the desire to repeat events, led to the design of the Committee's activities at ISIT 2016 and ISIT 2017. At both ISITs the Committee organized round-table events. The goal was to provide the time and space for mentoring to occur. With the framework fixed, the topics can continue to evolve. Mentors only need to show up. Mentees have the opportunity to talk and connect with multiple senior people.

A question was raised whether it might help the Committee meet its objectives, and perhaps the need to expand outreach to young professionals, if each ISIT had a chair of outreach. It was additionally pointed out that the nascent restructuring of the Membership Committee (of which Outreach is currently a subcommittee) would leave fewer people focused on outreach. This makes the streamlining of activities that Aaron discussed very timely. A worry raised was whether termination of the mentor-mentee pairing program might be unfortunate for the, perhaps 20%, of pairings that work well. Aaron acknowledged that while there are pros and cons of the switch, the Committee feels that new version is both better focus and more sustainable. That said, there are still ways to try to foster one-on-one mentorship relationships. For instance, there is an opportunity during the ISIT round-table for participants to sit down with members of the Outreach Committee to try to identify possible one-on-one mentors.

- 8) Short Video Project Initiative:** Michelle Effros provided an update on the videos project. She reviewed the team working on the videos. Two videos have been produced to date. The first is on network coding, the second on space-time codes. There is funding for additional video and the team is seeking proposals for additional topics. Selection guidelines include: broad appeal and demonstrated impact (established rather than future technologies). It goes without saying that this is not a venue to push one's own work but rather a mechanism to push community-wide ideas. A short section of the videos were played for the BoG. While the videos were not yet public at the time of the meeting, the plan was to make them public shortly thereafter. Both videos are now available on YouTube. The first is available at <https://www.youtube.com/watch?v=B0ZcAWEvjCA>. The second is available at <https://www.youtube.com/watch?v=cbD4NsZQKYw>. As discussed, once finalized, the videos were released in a concerted publicity effort, both through the producer's (Brit Cruise's) YouTube channel, which connected them to his already large audience, as well as through ITSoc and other channels to maximize attention. To emphasize, the team actively encourages further proposals, with the understanding that the proposer should want to be involved with the development of the video.
- 9) Online Talks Initiative:** Suhas Diggavi started by reviewing the five main goals of the initiative. The first is to develop a set of expository lectures. These talk would be by experts, could be based on plenary conference or tutorial talks, and might even be "named" to raise their profile. The second is to create an information theory "hall of fame". This would be a repository of historical reflections on impactful ideas by people in the community. The idea would not be simply to tell the technical story, but the story behind the ideas, stories that capture the historical impact of information theory on technology and society. The third goal is to provide a forum to discuss nascent research ideas, something like a talk accompanying an arXiv posting. A successful forum would provide a venue to disseminate new ideas within the ITSoc community with the object of enhancing collaboration. The intent is not to have a strongly curated forum, but rather to establish a distributed model like TCS+ or the new Shannon Channel on YouTube, led by Salim El Rouayheb. We are planning to absorb the Shannon Channel into this new forum, with Salim being involved in this new effort as well. The fourth goal is to provide a venue for (invited) experts from

outside the traditional information community to discuss new research directions that could benefit from cross-fertilization with ITSoc. The fifth and final goal is non-academic outreach. The goal here is to foster academic/industrial interaction, perhaps through short forums at conferences or workshops. Suhas then provided the BoG some updates. He, Salim El Rouayheb, and Anand Sarwate are organizing the “ArXiv talks” forum. They would appreciate help with this effort. They ran a test lecture on 13 June for the “Shannon Channel” using Google hangout. They identified numerous issues, most or all of which seem would be solved by instead using Webex. Another live test will occur in the near future (note: this happened in Nov. 2017). The target is to have at least one lecture completed prior to the Feb 2018 BoG meeting. A question was raised as to which of the five goals is the current priority. Suhas responded that the curated lecture series is the current priority. Another recent update (as of Nov. 2017) is that two “hall of fame videos” are already under planning at Stanford and MIT, with resources allocated to it.

10) Shannon Children’s Book Initiative: Christina Fragouli spoke about the children’s book. A number of earlier hard copies were available at the meeting and were passed around. Feedback from a number of elementary school teachers and from Brit Cruise were incorporated. The last few issues are being resolved. There should be more copies available at the ITA meeting. Some of the remaining funds of the \$10k USD already allocated by the BoG will be used to print copies to distribute at ITA. Currently the price to print is about \$10 USD per copy. If the book were distributed on Amazon, the cost to purchase the book (Amazon would handle the printing and distribution) would be \$20 USD per copy. At this price point the book would generate no income for ITSoc. Some BoG members commented that \$20 USD is expensive for a children’s book. At the ITA BoG meeting Christina and Anna will present suggestions for further distribution, as well as exact details on the Amazon possibilities.

11) Proposal for a new Magazine and/or Special Topics Journal and for a new Magazine: Ad-hoc Committee Co-Chair Elza Erkip first reviewed progress with regards to the Journal on Special Topics in Information Theory. Following the ISIT BoG meeting, a letter-of-intent was submitted to the IEEE on 30 August. The letter will be reviewed at the next IEEE Technical Activities Board (TAB) meeting in mid-November. A steering committee has been formed, consisting of Robert Calderbank, Muriel Medard, Vincent Poor, Rüdiger Urbanke, and with Jeff Andrews serving as “shadow chair”. The committee will be responsible for selecting the first EiC and steering the journal through its first few years. Feedback will be provided by the TAB in late 2017 with formal proposal then to follow in 2018.

Elza then turned to the discussion of the IEEE Information Theory Magazine. A process similar to that described above for the special topics journal, and timeline, including a submission of a letter of intent to the IEEE TAB, is being followed. The steering committee for the magazine consists of Dan Costello, Christina Fragouli, and Ubli Mitra. Its tasks include developing the vision for the magazine and selection of the inaugural EiC and senior editors.

12) Shannon Documentary: Rüdiger Urbanke next provided the BoG an update on the Shannon Documentary. The documentary is progressing, additional shootings have occurred, and a rough first cut has been viewed by BoG members. Additional funds to the amount of over \$400k USD has been raised. The total amount raised to date is about \$900k USD. A short sequence was viewed at the BoG meeting. Rüdiger shared with the BoG some of the feedback provided to the director by those BoG members who have watched the rough cut. There was a discussion of how the director might get some clips of community members speaking about the contributions and impacts of Shannon for incorporation into the film. Some filming of community technical activities may occur.

13) CloudComm: Aaron Wagner next presented to the board on his hands-on approach to teaching digital communications at Cornell University. He noted that many digital communication classes are theory-oriented. This may, at least in part, be because it is hard to develop, and expensive to maintain, hands-on labs for such courses. However, without a lab, it is difficult really to experience many real-world communication issues such as synchronization, and one loses the excitement of getting something working in the real world. At the same time, even given an established lab, it is challenging to ensure everything works and that all student groups face the same channel because different lab stations in the same lab will behave differently. To resolve these issues Aaron developed a lab-in-the-cloud approach. In this approach a single physical-layer experimental setup can be accessed by students over a network. Students interface with the channel through easy-to-develop WAV files. While the setup exists at Cornell University, it can be expanded to be available for use by students at other schools. In other words, a single instance of physical-layer hardware could be maintained for global use.

The BoG asked what educational level this setup is aimed at. Aaron responded that, at Cornell, it is used in a fourth year course. Currently communications is over a baseband audio channel. He hopes to have an RF-band equivalent working by November for use in a first-year graduate course. Aaron made the point that the setup is flexible. It can be used to study a wide range of communication issues including how to combat inter-symbol interference, how to establish synchronization, and to test the efficacy of error-correction coding. In Aaron's experience students gain a huge amount from working with a real-world channel rather than an emulator thereof. A number of further questions and discussion followed: whether this setup could be integrated into classes that use other types of hardware, e.g., Arduinos; whether supporting an initiative like this falls within the mandate of ITSoc; how widely such a setup would be used (might be estimate through surveys) and whether such a system might prove especially useful for under-resourced institutions across the world. One BoG member raised the issue of massively open online courses (MOOCs), whether this framework could fit into a MOOC, and the fact that something analogous is being done for a Georgia Tech MOOC on robotics. In that MOOC the robots are physically located at Georgia Tech, students only ever interact with them remotely. A discussion then followed as to whether ITSoc support for this initiative could factor into a larger educational outreach effort by the Society including the videos project and online learning of basic information theory. The final point of discussion surrounded sustainability: what would be needed to ensure the long-term availability of the resource. The next step Aaron will be taking are two-fold. The first is to write an article for the Newsletter to help judge the interest amongst ITSoc member. The second is to consider how this idea might be integrated into larger outreach efforts.

14) Recap of Bylaws: Michelle Effros took a few minutes at the end of the meeting to discuss some aspects of the Bylaw changes she had not gotten to, especially regarding the reorganization of the membership committee. Some subcommittees of the Membership Committee (Outreach, WIHITS) are formed and even chaired by ITSoc members that are not members of the Membership Committee. This needs to be fixed in a future revision of the Bylaws. The relevant committee chairs were tasked with coming up with a proposal for the structure that they think would best serve these activities.

15) Adjournment: The meeting adjourned at 1:27pm local time.