

Jack Keil Wolf ISIT Student Paper Award

The IEEE Jack Keil Wolf ISIT Student Paper Award is given to up to 3 outstanding papers for which a student is the principal author and presenter. The award is based on the paper's technical contribution as well as the quality of its presentation. The prize was awarded to 3 papers this year:

- **O. Peled, O. Sabag, H. Permuter**, "Feedback Capacity and Coding for the (0,k)-RLL Input-Constrained BEC", *Proceedings of the 2017 IEEE International Symposium on Information Theory, Aachen, Germany, Jun. 2017*
- **J. Li, X. Tang, C. Tian**, "A Generic Transformation for Optimal Repair Bandwidth and Rebuilding Access in MDS Codes", *Proceedings of the 2017 IEEE International Symposium on Information Theory, Aachen, Germany, Jun. 2017*
- **Q. Yu, M. Maddah-Ali, S. Avestimehr**, "The Exact Rate-Memory Tradeoff for Caching with Uncoded Prefetching", *Proceedings of the 2017 IEEE International Symposium on Information Theory, Aachen, Germany, Jun. 2017*

2017 Chapter of the Year Award

The Chapter of the Year Award recognizes a chapter that has provided their membership with the best overall set of programs and activities. The 2017 winner is the

- **Sweden Section Joint Chapter (Vehicular Technology / Communications/ Information Theory): Tommy Svensson** (Chairman, Student activities, and Interface to ComSoc), **Elisabeth Uhlemann** (Vice Chair and Interface to VT Society), **Michael Lentmaier** (Vice Chair and Interface to IT Society), **Danyo Danev** (Treasurer), **Joachim Björnell** (Secretary and Membership and Social media development), **Lars Kildehøj** (Coordinator DLTs* and Membership development), **Luis Guillermo Martínez Ballesteros** (Coordinator DLTs*, Student and Industry activities and Interface to IEEE Sweden Section), **Gabor Fodor** (Industry activities).

Amin Shokrollahi: 2017 Padovani Lecturer

The Padovani Lecture is held annually at the North-American School of Information Theory.

*Distinguished Lecturer Tours

Seminar in Honor of Kees Schouhamer Immink

Jos Weber, Han Vinck, and Peter H. N. De With



Kees Schouhamer Immink

Kees Schouhamer Immink (Turing Machines Inc) received the 2017 IEEE Medal of Honor on May 25, 2017, in San Francisco, CA, USA, "for pioneering contributions to video, audio, and data recording technology, including compact disc, DVD, and Blu-ray". In order to celebrate the unique fact that this award was bestowed upon a member of the Benelux information theory community, a seminar in honor of Kees was held in Rotterdam, the Netherlands, on June 16, 2017. The venue was the beautiful Sociëteit KR&ZV "De Maas" (Royal Maas Yacht Club). The seminar, which was preceded by a lunch and followed by a reception

and dinner, attracted 45 participants. It was organized by Han Vinck, Jos Weber, and Peter de With and sponsored by the Shannon Foundation, the IEEE Benelux Chapter on Information Theory, and the Werkgemeenschap voor Informatie-en Communicatietheorie (WIC). Presentations were given by

- Han Vinck (University of DuisburgEssen, Germany): "Four myths about Kees Immink",



Kees with seminar speakers

- John Watkinson (Run Length Limited, UK): "Impact of Kees Immink's work on digital data- video-and audio recording",
- Hiroshi Kamabe (Gifu University, Japan): "Immink Codes for Phase Change Memory",

- Ronald Aarts (Philips Research & Eindhoven University of Technology, NL): “Kees and his channel coding for CD”,
- Peter de With (Eindhoven University of Technology, NL): “In the beginning there was Justesen”,
- Dirk Van Hertem (KU Leuven, Belgium & Chairman of the IEEE Benelux Section): “The IEEE and its Medal of Honor”,
- Jos Weber (Delft University of Technology, NL): “Kees Immink: his current work, his importance to the Benelux IT Community, and his UJ Honorary Doctorate”.

The slides are available via the seminar website

<http://homepage.tudelft.nl/2k00k/ImminkSeminar/>.

An interview with Kees appeared in the May 2017 issue of IEEE Spectrum.

Reflections on MOOC on Information Theory

Raymond W. Yeung

When Editor Mike Langberg invited me to write an article about the MOOC on Information Theory I made some time ago, I did not hesitate to accept because there are quite a lot about the MOOC I would like to share with the community.

The whole thing was started in early 2013 when CUHK joined Coursera. The upper management of the University asked me to consider making a MOOC. I agreed to do so because there were something about teaching mathematics that I would like to explore, and I had some ready materials from my book (*Information Theory and Network Coding*, Springer 2008) that I could make into an MOOC.

The MOOC was launched in January 2014, with over 25,000 registrations. This number was at least one order higher than I had expected, and it is nothing but a manifestation of the size of the cyber community. The MOOC was subsequently offered twice, in September 2014 and January 2015. The number of registrations for September 2014 was about 7,000. The number of registrations for January 2015 dropped below 5,000, and so I decided to put the courseware in public domain. All the videos and slides can now be accessed at

<http://www.inc.cuhk.edu.hk/InformationTheory/index.html>

Producing the MOOC

Like many, I used to hold the view that there is no better way to teach mathematics than teaching on the whiteboard. I changed my mind a little bit when my colleague Chandra Nair organized the Broadcast Channel Summit at CUHK in March 2010. Among the invited speakers was Abbas El Gamal. In his talk, he presented the theorems (taken from his book with Young-Han Kim to be published) on slides, and filled in the proofs on the whiteboard. I thought it was a pretty good idea. For one thing, the audience does not have to wait for the speaker to copy the theorems on the whiteboard, which is boring.

Subsequently, I taught my graduate course on information theory twice in this fashion. I took videos of my lectures and put them on the web. The students loved it. However, upon seeing some Khan Academy presentations, I immediately realized that myself appearing in the videos was completely redundant—I was simply blocking the whiteboard!

So, when I made the MOOC, I decided to use a style somewhat similar to that of Khan Academy. However, because I was going to teach very detailed mathematics, I could not possibly write all the equations on the screen like Khan Academy. First, my handwriting is admittedly not pretty and I cannot write and explain simultaneously very well. Second, handwritten equations simply take up too much space on the screen.

Instead, I prepared all the text and equations by Latex, and on top of them I put layers and layers of animations using Keynote on Mac. It was a tremendous effort because on a single slide there could be more than 100 animation steps.

Most MOOCs use a cursor on the screen for presentation. I was debating with myself whether I should do the same. After some thought, I decided to develop my own style which I believe is most suitable for teaching mathematics. Instead of a cursor, I use highlighters. The advantages are i) I can highlight more than one thing on the screen; ii) I can use different colors to highlight different things; iii) the highlighting “boxes” can move around on the screen; and iv) the highlighting boxes can disappear after they have finished their jobs, thus making room for new highlighting. In addition to highlighting, I also use underlining with different colors. The advantages are similar.

After getting the slides ready, I recorded the narration in the studio while playing the animation. I used a popular software called Camtasia to do the screen capturing and recording. To me, the recording was not at all easy because I needed to coordinate my narration with the playing of the animation. At first, I tried to speak out the narration perfectly in one go, but I found that this put too much stress on myself as I am not a professional speaker. After some experiments, I decided to speak out the narration as perfectly as I could, but if I made a mistake, I simply repeated that part and edited the audio track afterwards.

By the way, it is important to record in the studio instead of in the office. High quality audio does extend the concentration span of the viewers.

Very often I needed to record the same segment three or four times to get it perfect. This made the recording process tedious