Report on the Ninth Annual North American School of Information Theory

By Robert Calderbank, Dror Baron, Matthieu Bloch, Galen Reeves, and Henry Pfister

The Ninth Annual North American School of Information Theory (NASIT) took place at Duke University on June 21-23, 2016 with 99 registered attendees.

The NASIT is part of an educational initiative whose main purpose is to provide a venue where graduate students and post-docs can meet to discuss research, form friendships and collaborations, and learn how to actively and socially participate in scientific research. The students present themselves and their research in a friendly environment, interact with well-known senior scientists, and exchange ideas. While the core topic of interest is, of course, information theory, related topics in mathematics, physics, biology, networking, and communications are also welcome.

The NASIT consists of the courses given by distinguished scientists interspersed with poster presentations by the students. The five lecturers this year were Aylin Yener (Penn State) who presented Information-Theoretic Security, Krishna Narayanan (Texas A&M) who explained how the peeling decoder from coding theory is related to sparse Fast Fourier transforms, Natasha Devroye (University of Illinois at Chicago) who spoke about the interference channel, Helmut Bölcskei (ETH Zurich) who lectured on the mathematics of deep learning and René Vidal who spoke about global optimality in matrix and tensor factorization. Helmut Bölcskei’s lecture was the 2016 IEEE Information Theory Society Padovani Lecture.

As usual, student participation was strongly encouraged. The School included 45 poster presentations in two poster sessions that overlapped the 2-hour lunch break. The poster sessions were lively and interactive with discussions continuing during the afternoon break.

The social program included the choice, on June 21st, of a game night hosted at the information initiative at Duke (iiD) or watching the Durham Bulls play baseball. On June 22nd, a reception dinner was held at iiD and attendees were encouraged to write logic puzzles on white boards and solve a turbo-style crossword puzzle celebrating Shannon’s 100th year.

Many people helped to make the 2016 NASIT a success. We, the organizing committee, collaborated to choose the speakers, the schedule, and the overall plan. When we needed help, we reached out to our executive advisors Andrea Goldsmith, Gerhard Kramer, and Aylin Yener. Katherine Peterson, the administrative assistant for iiD, did an amazing job of helping us realize our plan by organizing the registration, the food, and the housing. She was assisted by Ariel Dawn (iiD) and our dedicated local volunteers: Efe Aras, Mengke Lian, Kevin Liang, Vaishakhi Mayya, Narayanan Rengaswamy, Gregory Spell, and Alireza Vahid. Thank you all!

The 2016 School was made possible by financial support from several institutions. In particular, the IEEE Information Theory Society, IEEE Padovani Lecture Fund, the Center for Science of Information, Duke University, and the information initiative at Duke (iiD). We offer our sincere thanks for their support.
As usual, a year of planning culminated in a few exciting days and a good time was had by all. But, the 2017 plans are already underway. Matthieu Bloch will be chairing the 2017 organizing committee for the school next year in Atlanta. Start spreading the word now!

In the meantime, for more information, we invite you to browse the 2016 School website [http://www.itsoc.org/conferences/schools/north-american-school-2016/](http://www.itsoc.org/conferences/schools/north-american-school-2016/) to see the lecture slides, video recordings, and more. Enjoy!

Group photo in the Fitzpatrick Center for Interdisciplinary Engineering, Medicine and Applied Sciences at Duke.

Solmaz Torabi explains her poster to Shirin Jalali and Swanand Kadhe presents his poster.