"Martin Hellman: Reflections on Ethics and Cryptography"
talk via videolink with audience Q&A

Abstract: As computers and computing, and their underlying algorithms, become more pervasive in our lives, ethical decision making is becoming ever more important in mathematics. This talk hopes to help mathematicians, as developers of these algorithms, rise to that challenge. It does so first by demonstrating how easily we fool ourselves, using a personal example where I did that when confronted with the inadequate 56-bit key size of the Data Encryption Standard (DES). It then uses another personal example, Stanford's patent fight with RSA Data Security, to show how difficult it was for me to make ethical decisions even after I had committed never to fool myself again. The resolution of my dilemma demonstrates the value of getting input from outside parties, of lowering the bar for what constitutes unethical behavior, and of working to make society more ethical as a whole.

"Richard Stallman: A Free Digital Society"
pre-recorded lecture + remote live Q&A with Richard

Abstract: There are many threats to freedom in the digital society. They include massive surveillance, censorship, digital handcuffs, nonfree software that controls users, and the War on Sharing. Computers for voting make election results untrustworthy.

Other threats come from use of web services. Finally, we have no assured right to make any particular use of the Internet; every activity is precarious, permitted only as long as companies are willing to cooperate with our doing it.

"Daniel J. Bernstein and Tanja Lange on Cryptography"

Bio: Daniel J. Bernstein is a research professor in the department of computer science at the University of Illinois at Chicago. He is the designer of the "Curve25519" public-key system used by WhatsApp for end-to-end encryption, many more tools used throughout the Internet infrastructure, and new tools designed to protect against the threat of future quantum computers. His current mission is to cryptographically protect every Internet packet.

Tanja Lange works on cryptography and number theory. She is the chair of the Coding Theory and Cryptology group at the Technische Universiteit Eindhoven in the Department of Mathematics and Computer Science. She is also scientific director of the Eindhoven Institute for the Protection of Systems and Information.

"Glenys Wilson: How does a mathematical mindset affect the way we see the world?"

Abstract: How do you feel when you do maths? Why do you do it, and why do you choose to do it over other things? In this talk we'll be looking at the way mathematicians view problems: logically, with precision, and in a detached and objective way. We'll discuss why mathematicians might enjoy, seek out, and be good at viewing things in that way, and perhaps why they might be reluctant to tackle problems that cannot be made precise. We'll discuss how that carries over to how mathematicians view the world and how these attributes impact them in other parts of their daily life.

Bio: Glenys is a senior clinical psychologist now living in the UK, and previously worked at the University of Melbourne as a specialist focusing on neurodiversity.

Mathematics is one of the most fundamental areas of human study. It is both the language and the tool that connects our abstract understanding with the physical world. Today it lies at the heart of all technological developments and its universality is unquestionable.

We see mathematics as a tool for doing good, because we can find good and useful things to do with it. It is clearly used as a way for humans to understand, change, direct and manipulate the world around us. But, just as this can be for good, it can also be for bad. Indeed, those who have the greatest ability to understand and manipulate the world hold the greatest capacity to damage and inflict harm.

We are the Cambridge University Ethics in Mathematics Society, and we are here to help mathematicians recognise the ethical questions that can arise when doing mathematics. By hosting lectures, talks, and discussions we hope to give mathematicians some of the insight and tools that they will need to deal with ethical issues in their work.

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