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**Title: Cybersecurity of critical systems, 2020 and beyond**

**Abstract:** We've been doing large-scale cybersecurity now for 20 years (at least). But the landscape is demonstrably worse now than ever. We have a wealth of research on the topic, but the scale and pace of the problems are only increasing. Vulnerabilities are being discovered at an increasing rate; exploits are being developed more quickly by increasingly well resourced professional hackers; and the Internet of Things creates an almost perfect storm of new problems. And the economic incentives to fix problems are not always strong enough to force businesses into action. Where does this end -- should we just give up?

No! There are some good tools and ideas out there. In this talk I will go through a (somewhat lopsided) view of network-level cybersecurity, with the aim of talking about what we need to do to build better, more secure networks in the future.

**Bio:** Prof. Matthew Roughan obtained his PhD in Applied Mathematics from the University of Adelaide in 1994. He has since worked for the Co-operative Research Centre for Sensor Signal and Information Processing (CSSIP), in conjunction with DSTO; at the Software Engineering Research Centre at RMIT and the University of Melbourne, in conjunction with Ericsson; and at AT&T Shannon Research Labs in the United States. Most recently, he works in the School of Mathematical Sciences at the University of Adelaide, in South Australia. His research interests range from stochastic modelling to measurement and management of networks like the Internet. He is author of over a 100 refereed publications, half a dozen patents, and has managed more than a million dollars worth of projects. In addition, his coauthors and he won the 2013 Sigmetrics "Test of Time" award, and his work has featured in New Scientist and other popular press.