



Hamilton Institute

CHAOSNETS: Building Scalable, Secure, and
Reliable "Chaotic" Wireless Networks

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Abstract:

In the near future, we anticipate a world with many billions of wireless devices--- handheld, in your laptop, automobile, even embedded into everyday objects. We predict that the networks such devices form will be "chaotic": existing in unlicensed spectrum and largely unplanned by any central authority. However, evidenced by WiFi, when eager users set up too many access points in a densely populated area, the resulting noise and interference diminishes capacity and reliability. We see this as an opportunity to redesign chaotic networks to be more scalable, secure, and reliable, while maintaining their ability to grow unfettered by licenses and costly infrastructure.

In this talk, I will describe two ongoing efforts to this end. First, we are investigating the application of rateless error control codes to make the "grey zone" of wireless coverage more reliable. Second, we are utilizing angle-of-arrival information at wireless access points to make the network more secure and provide a very fast and accurate indoor localization service.

Joint work with Mark Handley, Calum Harrison, Brad Karp, Lynne Salameh, and Jie Xiong.

Biography:

Kyle Jamieson is a Lecturer in the Networks Research Group at University College London. His research interests are in building real-world wireless systems that cut across the boundary of digital communications and networking. He received his PhD in June 2008 from Massachusetts Institute of Technology and holds a European Research Council "IDEAS" programme Research Fellowship.

<http://www.cs.ucl.ac.uk/staff/K.Jamieson>

Venue: Seminar Room, Hamilton Institute, Rye Hall, NUI Maynooth

Time: 2.00pm - 3.00pm

Travel directions are available at www.hamilton.ie

