# Georgia Institt of Technolog **Towards Stealth Networks Fundamental Limits and Algorithms for Stealth Communications**

Wireless signal leakage unavoidable

Information-theoretic modeling to identify

hard to escape detection

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## Challenge:

- Characterized informationtheoretic limits of covert communications
- Develop provably undetectable communication schemes

#### **Solution:**

- Exploit low-weight codebooks, with codeword weight scaling a square root of block length
- Exploit information-theoretic techniques to control channel output statistics

fundamental limits Quantify number of bits that can be conveyed reliably and covertly ( A

## **Scientific Impact:**

- New insights into design of schemes with low probability of detection, potentially without share secrets
- Highlights dual role of errorcontrol codes, to ensure reliability and shape statistics of transmitted waveforms

### **Broader Impact:**

- New techniques to avoid detection by monitoring entities
- Applications to spectrum sharing by designing undetectable secondary users

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Contact: Matthieu Bloch matthieu@gatech.edu