



Mathematics and CS Seminar

Identifying and Preventing Large-scale Internet Abuse

Kevin Borgolte (UC Santa Barbara)

Host: Krzysztof Pietrzak

The widespread access to the Internet and the ubiquity of web-based services has made it easy to communicate and interact globally. Unfortunately, the software and protocols implementing the services' functionality are often vulnerable to attacks because of software or design bugs, legacy code, not being maintained, entirely new classes of vulnerabilities, a disconnect in what they are supposed to do and what they are actually doing, or just evolution in how they are being used. In turn, attackers can exploit them for their own nefarious purposes, to turn a profit from criminal enterprises, or to wreak havoc for fun. Today, such abuse on the Internet is rampant and Internet users must tread carefully to not be defrauded, scammed, extorted, misled, influenced, or have their (private) data siphoned off and misused. In my research, I aim to better understand, identify, and prevent these attacks. In this talk, we tour how to identify and prevent different kinds of Internet abuse, and we investigate how we can retain the tools we need to understand and analyze large-scale security phenomena in tomorrow's Internet. We look at website defacements, malware distribution campaigns, takeover attacks, and denial-of-service attacks, all of which have become major challenges for the security research community, service operators, and Internet users alike. Our investigation will show how these attacks are possible, why attackers are launching them, and how we can identify or even prevent them. Then, we dive into problems that inevitably upcoming Internet protocols, like IPv6, have in stock for us. Namely, they take fundamental tools away from the research community, thus turning us blind when trying to measure and understand Internet-wide (security) phenomena, and, at the same time, they introduce additional attack surface that is ripe for abuse by miscreants. Finally, I detail research directions to tackle tomorrow's yet unknown large-scale Internet abuse issues.

Wednesday, May 16, 2018 10:00am - 11:00am

IST Austria Campus Big Seminar room Ground floor / Office Bldg West (I21.EG.101)



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: <https://ist.ac.at/en/campus/how-to-get-here/> The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.