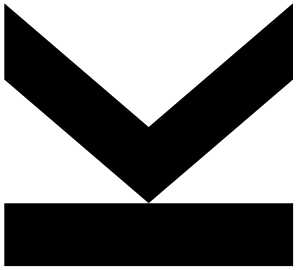
Bachelor-Infoabend Informatik



JOHANNES KEPLER
UNIVERSITÄT LINZ

Michael Sonntag
Institute of Networks and Security

Mögliche Bachelorarbeiten

- State-of-the art face recognition pipeline attack (Hofer): Systematically attack a state-of-the-art face recognition pipeline using different optical means, such as clothing to spoof face detection, (silicone) masks, paint etc
- Sensor node communication via ephemeral Tor Onion services (Roland): Create a library for simple machine-to-machine communication via short-lived hidden Onion services
- Mobile driving license reference implementation (Roland): Implement the current standard for mobile driving licenses (ISO/IEC 18013-5) on Android
- Security analysis of the Linux kernel in Mikrotik RouterOS (Mayrhofer): Analyze which security vulnerabilities - especially remotely exploitable ones - are publicly known for the user kernel version and if/how they have been patched.

Mögliche Bachelorarbeiten

- Android Device Security Database: Network monitoring (Roland): automate monitoring of all network traffic from Android devices in terms of statistical data and classification on higher levels
- Comparison of DNS results for TOR exit node DNS queries against different providers (Roland): Investigation of deviating responses, especially regarding filtering/censorship
- Analysis and implementation of the iButton/1-Wire protocol (Roland): Analysis; build an environment for reading and emulating iButton slave devices.
- VoIP forensics (Sonntag): Reconstruct voice data from a data stream
- Video forensics (Sonntag): Reconstr. video data from a data stream
- Emotion detection (Sonntag): VoIP tap for softphones; partition data according to speaker (near/far end) and analyze emotions of participants

Mögliche Bachelorarbeiten

- Asterisk als Anonymisierungsserver (Sonntag): Similar to the Tor network, but for telephone communication: anonymizing the phone number
- Online-Nachsuche (Sonntag): Beweissicheren Dokumentation von Aktionen und Daten, die z.B. beim forensischen Zugriff auf einen fremden Webmail-Account erfolgen
- Anomaly Detection in Cybersecurity (Horacek): Develop a practical scenario and test it with various techniques
- Privacy on Smartphones (Horacek): Extend the Android Device Security Database (which is more focused on security) to privacy attributes and indicators (e.g. privacy policies, user profiling, network traffic analysis, company resolution) for various OEMs/models.

Eigene Themen /Themenvorschläge

- Eigene Themen sind gerne gesehen, müssen aber zum Institut passen und sind mit einem Betreuer abzusprechen
  - Ob sie sich als Bachelorarbeit eignen
- Passende Gebiete
  - Sicherheit: Software, Programmierung, Analyse von Geräten
  - Netzwerke: Protokolle, Reverse-Engineering, Implementation
  - Anonymität (Technische Aspekte): Verbesserung, Analyse
  - Identität: Wie identifiziert man sich, Föderationen, Selbstkontrolle
  - Forensik: Produkt-Untersuchung, generelle Vorgehensweisen
- Eher nicht:
  - Apple: Linux, Android, Microsoft → OK!
  - Zweit-Implementation existierender Programme/Apps/…
    - Es muss etwas interessantes/neues sein!

JOHANNES KEPLER
UNIVERSITÄT LINZ

INSTITUTE
OF NETWORKS
AND SECURITY

https://www.ins.jku.at

VIELEN DANK FÜR IHRE AUFMERKSAMKEIT!

FRAGEN?

Michael Sonntag
michael.sonntag@ins.jku.at
+43 (732) 2468 - 4137
S3 235 (Science park 3, 2nd floor)

JOHANNES KEPLER
UNIVERSITÄT LINZ
Altenberger Straße 69
4040 Linz, Österreich
www.jku.at