

Common Flaws in Protocolsecurity — WS  
2022/23  
Seminar

Maximilian von Tschirschnitz &  
Ludwig Peuckert

Lehrstuhl für Sicherheit in der Informatik / I20  
Prof. Dr. Claudia Eckert  
Technische Universität München

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# What is this seminar about?

- ▶ **Design flaws** in communication protocols
- ▶ **Mitigations**, Fuzzing, Verification, Code Generation
- ▶ **Lessons learned**: Effect on later protocol generations

# Process

- ▶ Phase **I**: Select a **topic**
- ▶ Phase **II**: Find **literature**
- ▶ Phase **III**: Do your **reading / experiments / programming**
- ▶ Phase **IV**: **Writing** phase I
- ▶ Phase **V**: **Peer review**
- ▶ Phase **VI**: **Writing** phase II
- ▶ Phase **VII**: Final **talks**

Exact schedule will be published once list of participants is known.

# Phase I

1. We will provide you with a list of **our topics of interest**
2. You will **choose / propose** your own topic and either:
  - ▶ Work out the crucial designflaw
  - ▶ Elaborate on mitigations and impact on protocolsecurity
  - ▶ Reproduce the results of an existing conference paper
  - ▶ Create your own Systematization of Knowledge (SoK) paper
3. In all cases, you will put your work into context of existing literature
  - ▶ e.g at Usenix Security Symposium, S&P, ACM CCS, NDSS

# Our Topics of Interest

- ▶ Specific Attacks (e.g. Downgrade, Replay)
- ▶ Implementation Specific Bugs (e.g., Heartbleed, Ping of Death)
- ▶ Trust Establishment Design Principles (PKI, Web of Trust, TLS)
- ▶ Formal Verification for Protocols
- ▶ Automatic Code Generation/Validation from Specification
- ▶ **Or:** Provide us with your own topic proposal

# Registration

- ▶ Registration using the **matching system**
- ▶ **No** letter of motivation
- ▶ approx. **8** slots

# Time and Place

- When?** Tuesdays 14:00 - 16:00 roughly Bi-Weekly
- ① Some meetings will be canceled or replaced
  - ② First meeting in the first lecture week
  - ③ First task before first meeting

Talks at the **end** of the semester

**Where?**





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- Where?** Talks at the **end** of the semester  
Seminartagungsstätte Frauenchiemsee  
**Disclaimer:** Only if participants show interest!  
Fallback: On-campus conference

# Grading

40 %	Final Paper (Content, Style, Language, Scope, ...)
10 %	Practical application (depends on topic)
10 %	Review
30 %	Presentation (Content, Style, Timeliness, ...)
10 %	Discussion

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$\Sigma$  100 % Total

# Questions?

Contact us at  
maximilian.tschirschnitz@sec.in.tum.de,  
peuckert@sec.in.tum.de

<https://www.sec.in.tum.de/i20/teaching/ws2022/common-flaws-in-protocol-security>