Thesis Topics
Dresden, February 5, 2021
General scope: Physical Layer Security
Channel Reciprocity based Key Generation

Wireless Network Security
- Classical Encryption
  - Asymmetric Encryption
  - Symmetric Encryption
- Physical Layer Security
  - Keyless Security
  - Secret Key-Based Security

Alice → Bob
Eve
Implementation for robot
Scope: Großer Beleg/Studienarbeit/INF-PM-FPA

Existing robot for measurements
Adapt movements and obstacle handling
Realize complete key exchange

Tasks:
• Implement CRKG pipeline using Python
• Setup real measurements
• Measure performance metrics (e.g. key rate)
Machine Learning based Attacks against CRKG

Scope: *

**Attack CRKG** by *inference* of channel properties

Possible approaches: time series regression, direct inference,…

**Tasks:**
- Implement ML attack using **keras** or **tensorflow**
- Realize attack with existing measurements
- Compare resulting bit vectors to CRKG results