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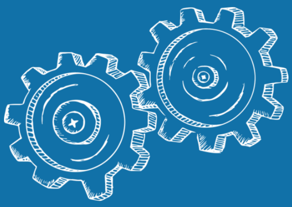


Side-channel Analysis of Exotic PQC Signature Schemes

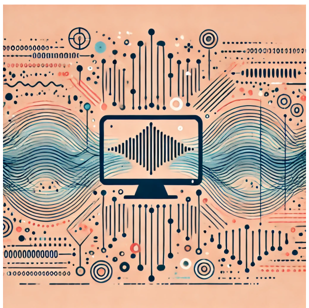
Advisor: **Rishub Nagpal**

Motivation

The National Institute of Standards and Technology (NIST) has placed an extended call for quantum-resistant digital signature schemes based on different mathematical primitives (Code-based, Oil and Vinegar, Multivariate schemes etc.). The goal of this thesis is to select one (or a few candidates) and analyze the scheme's susceptibility to side-channel attacks. The scope of the project may include (but not limited to): implementing a scheme on a selected software/hardware platform, creating a novel attack tailored to a particular scheme in simulation or on a real device, developing countermeasures to protect against attacks. For more details, contact the linked email.

Goals and Tasks

- Get familiar with the state-of-the-art in post-quantum cryptography.
- Get familiar with state-of-the-art in side-channel analysis.
- Perform a real attack, in simulation or with real equipment



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Literature

- National Institute of Standards and Technology (NIST)
  Lightweight Cryptography Standardization Process
  https://csrc.nist.gov/Projects/pqc-dig-sig/round-1-additional-signatures 2024

Courses & Deliverables

☑ **Master's Thesis**
+ DiplomandInnenseminar (CS)
Initial presentation
Project code
Thesis (60+ pages)
Final presentation

Recommended if you're studying

☑ CS ☑ ICE ☑ SEM

Prerequisites

- Interest in PQC and Side-channel attacks
- Programming in C/x86/ARM Assembly/Verilog/Your favorite language

Advisor Contact

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