

# CAREER: Proactive Defense Methods for Chip Integrity and Security

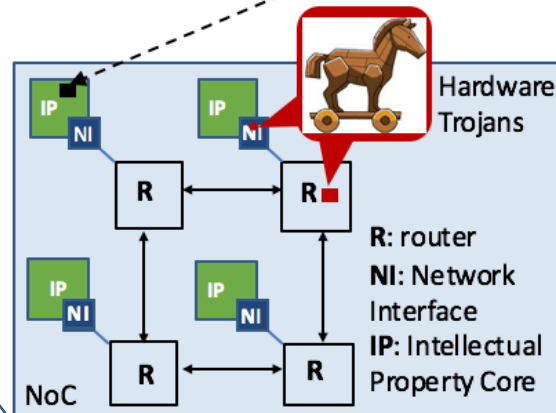
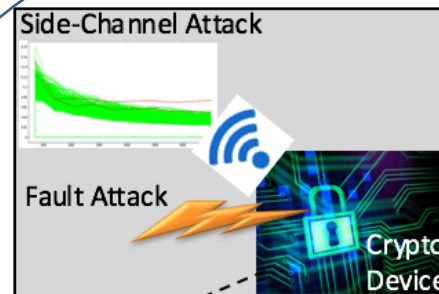


## Challenge:

- Hardware cannot be patched like software if a security vulnerability is identified
- A countermeasure should have self-defensive capabilities
- Multiple existing attack methods can be combined into an advanced attack

## Solution:

- Dynamically deflective hardware obfuscation
- On-chip interconnect network dynamic hardening
- Ineffective countermeasure to defeat combined attacks



## Scientific Impact:

- The obfuscated system is capable of resisting an attack that exploits the advanced tools to analyze the IP netlist and primary outputs
- The proposed method particularly considers the cross influence between countermeasures for different attacks and provides a unified framework for combined attacks

## Broader Impact:

- Project outcomes will facilitate the implementation of trustworthy chips for both mission-critical and commercial applications
- The PI used Snap Circuits to develop teaching modules for grades 2-5 students in the UNH KEEPERS program thus attracting young students to the field of ECE

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