University of Maryland Baltimore County
CMPE/ENEE 419/691
Hardware Security
Spring 2023

HW4b: Using Testability Parameters for Trojan Detection

Due Date: 03/16/2023

Deliverables

- A .zip file containing
    1. A file contains all testability parameters (CC_0, CC_1, CO, and CC as mentioned below).
    2. A file containing a list of 30 most suspected trojan gates.
    3. A short report discussing what you did and the process of selection.

You were asked to read the paper "*COTD: Reference-Free Hardware Trojan Detection and Recovery Based on Controllability and Observability in Gate-Level Netlist*" for the first part of this homework (homework 4a).

In this 2nd part, you are to do the following:

1. Generate the testability (controllability and observability) values for the provided benchmark circuit "circuit" as described by the tutorial "Using TetraMAX".

2. Analyze the output file containing the testability values by writing a script to find CC value for each signal. As mentioned in the paper, consider:

$$CC(s) = \sqrt{CC0^2(s) + CC1^2(s)}.$$

3. Based on your analysis, determine the 30 most likely trojan gates from your analysis (only based on CC parameter)

Note that you need to write a code in a language of your interest for part 2. You need to deliver the code and a make file to run it.