

UIC ECE464 (Fall 2025) Project 1: Circuit and Faults

Use your favorite programming language to come up with the following functionalities:

1. **Fault listing.**

For a circuit bench file given by the user, establish the circuit data structure and generate the full fault list.

2. **Circ sim.**

For any given input vector given by the user, produce the simulation for the circuit.

3. **Fault sim.**

- a) (any TV any fault) For any fault and any test vector given by the user, perform fault simulation on the circuit and determine whether this test vector detects the fault or not.
- b) (any TV all faults) For any test vector given by the user, apply fault simulation on each of the fault in the full fault list, output the result whether each fault is detected or not, and finally the total number and percentage of faults covered by this test vector.

Your program should finish fast for any of the above part. For instance, we expect your program to finish within at most a few minutes even if processing the largest bench files such as c7552.bench.

You can work in a team of 1 – 2 people.

Submission deadline: week 8 Friday 11:59pm on gradescope.