EC552 Project Report

Team: Violin

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GitHub Link: https://github.com/SweetSourPeter/violin

Short Description

Through taking this course, we have found that there are a lot of software tools that aim to help with different stages of Synthetic Biology, namely, specification, design, assembly, and testing. As helpful as they may be, the mere number of tools can somehow act as a barrier to Synthetic Biology. Having to learn so many tools can be a daunting task and slows down the research process.

Therefore, we want to find a way to reduce the learning curve of existing and powerful Synthetic Biology tools, that is, making them more accessible to users. And the tool we have chosen to work with is Cello. Because of our goal to make Synthetic Biology tools more accessible, and do not slow down the research process in the meantime. Violin has virtually zero learning curve, and does not take more time than using Cello directly. In the terminal or command, with the environment and dependencies installed, the user only needs to input the truth table or define the logic of their expected circuit, the inputs and the outputs of the circuit, and name the design. The rest of the work will be automatically finished by our application. The result will show in the http://v1.cellocad.org/index.html in the browser.

Important Functions

1. Truth Table

   Users are given two approaches to create their truth table. They can either create by emptyTruthTable command and fill in the rest of output; or they can create using createTruthTable command using logics.

2. Compile Verilog Code

   The ‘violin compile’ command is used to compile the truth table into verilog code and save it into a local .txt file.

3. Auto browsing

   The ‘violin startCello’ command opens up the CelloCad in browser and automatically upload verilog and UCF files.

Special / Run Instructions

Installation

1. *cd /violin*
2. *pip install -r requirment.txt*
3. *create your own requirement or add libraries, please use*

   pip freeze > requirement.txt

4. Chrome Driver Installation

1. check for chrome version: HELP->ABOUT
2. download according to chrome version from Google
3. If you are on windows, please add it to PATH

RUN(in CMD/cli)

1. pip install --editable .
2. violin(command example)
    1. violin --help
    2. violin startCello --input=pTac --input=pBAD --output=sigmaT7
    3. violin viewTruth
    4. violin viewVerilog
    5. violin createTruthTable
    6. violin compile
    7. violin emptyTruthTable