Schiederman’s 8 golden rules

1. Strive for consistency
   The was a consistent user of colors, icons and labels across the UI

2. Enable frequent use of shortcuts
   There was no reason to use shortcuts as every function was able to be activated using a single or few clicks.

3. Offer informative feedback
   The use of colors and checkboxes provides feedback on whether a function is activated or not.

4. Design dialog to yield closure
   There was no use of dialogs in the UI which makes it difficult for the user to know the state of the simulation.

5. Permit easy reversal of actions
   The functions can easily be reserved by clicking on the same button.

6. Offer simple error handling
   The UI does not provide any error messages when the simulation or function fails to start. Error handling should be implemented as quickly as possible.

7. Support internal locus of control
   The user is in control of every feature present in the UI.

8. Reduce short term memory load
   All the buttons are labeled with their respective functions in the UI so the user does not need to remember anything.

Norman’s 7 principles

1. Visibility
   All the buttons and functions are easily visible except when the button is activated the green background makes white font difficult to read.

2. Feedback
   The use of green and black backgrounds provides feedback about a functions state however a descriptive dialog box would have made it easier for a new user to use the software.

3. Constraints
   There are no constraints or limitations of the possible actions in the UI which can cause instability in the simulation.

4. Mapping
   The mapping relating UI elements to functions are good.

5. Consistency
   There are similar UI elements used for similar functions.

6. Affordance
   The labeling of the buttons makes it somewhat easier to use but a ‘help’ or ‘what’ icon beside every possible action would have made it even more clearer.

7. Conceptual model
   Users that have never used carla before cannot understand the concept by this UI alone as there is no documentation or help section