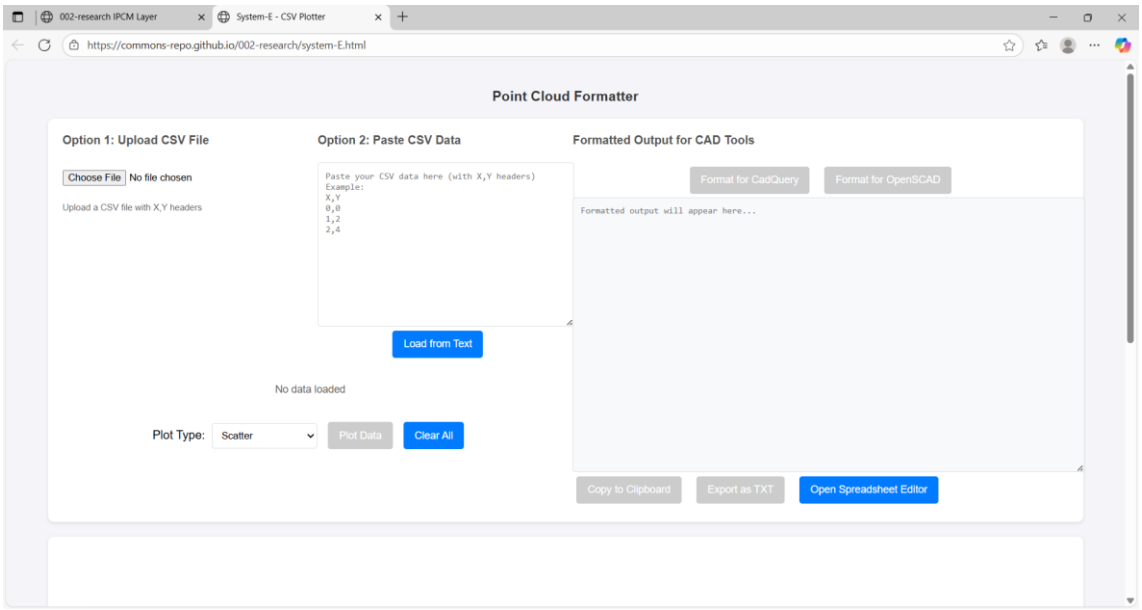
How to use System E

(Point Cloud Formatter)

1. Open the system. An interface will be opened like below.



2. Loading Data:

   System E allows point-cloud data to be loaded in two alternative ways.

   (a) Uploading a CSV File: Select a file using the ‘Choose File’ button under Option 1. The file must follow the simple two-column header format:
   X,Y
   x1,y1
   x2,y2
   …

   (b) Pasting CSV Data Directly: Paste data—including the X,Y header—into the text box under Option 2. Then, click ‘Load from Text’ to import the values into the system.

   In both cases, upon successful loading, the system parses the X–Y coordinates and prepares them for plotting, editing, or formatting.

3. Formatting for CAD Tools: Click either ‘Format for CadQuery’, or ‘Format for OpenSCAD’ to generate the corresponding point-list representation. Selecting one of these options automatically converts the loaded point cloud into the appropriate syntax used by the target environment. The formatted result appears in the right-side text area for immediate inspection.

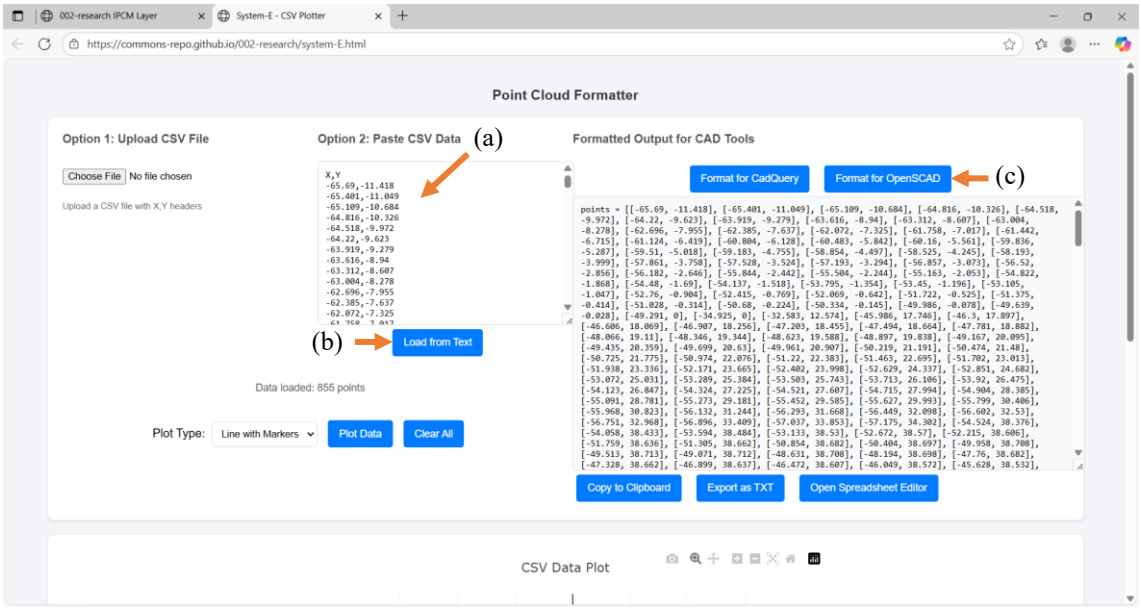
4. Exporting or Copying the Formatted Output:

   Users may retrieve the formatted text through either method:

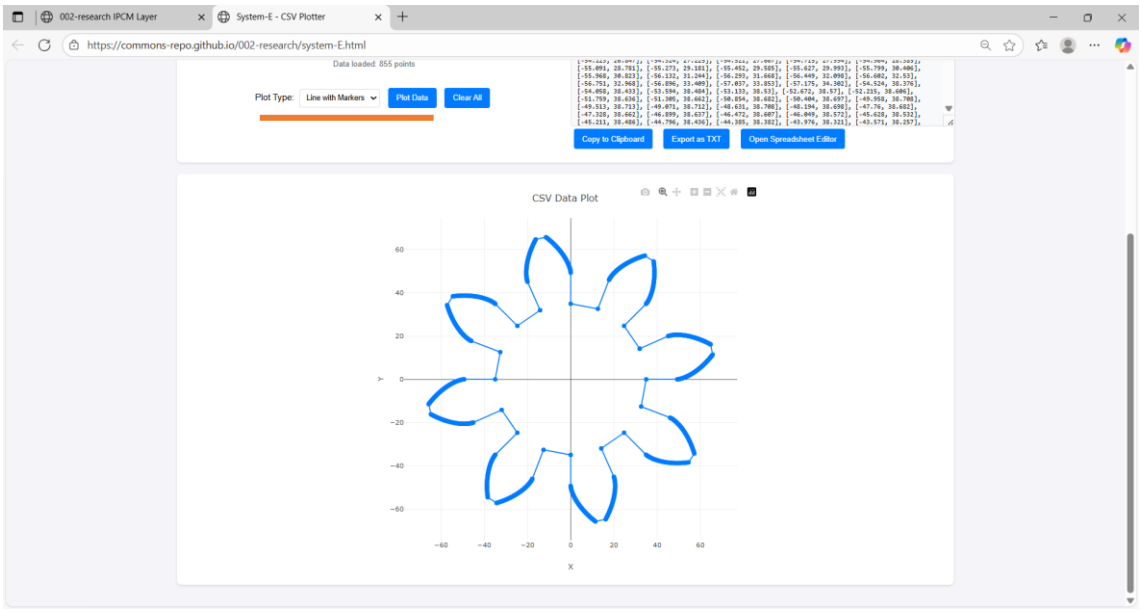
   (a) Copy to Clipboard: Click ‘Copy to Clipboard’ to copy the formatted data directly. This allows immediate pasting into an OpenSCAD script or a CadQuery Python file without additional steps.

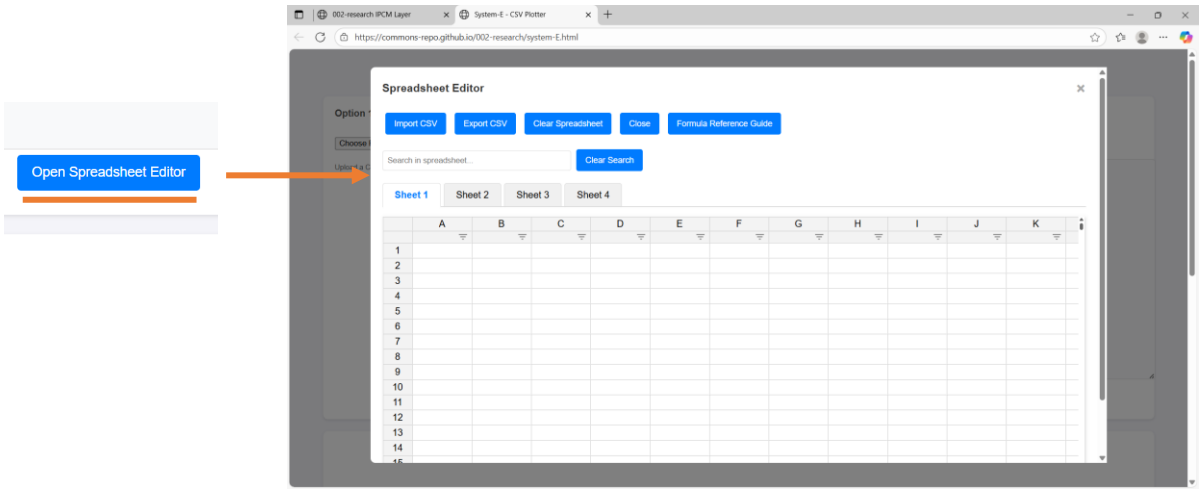
   (b) Export as Text (TXT): Click ‘Export as TXT’ to download the formatted content as a plain text file. This is useful when preparing project folders, archiving intermediate results, or integrating with external workflows.

5. The following screenshot illustrates a case where point data were (a) pasted directly into the text input area, (b) loaded, and then (c) formatted for OpenSCAD. The dataset used in this example corresponds to the cleaned and ordered points produced by System D (see the System D guide for details).



6. In addition to formatting, the system also provides basic visualization capabilities. The user may choose Scatter, Line, or Line with Markers from the plot-type dropdown and then select the ‘Plot Data’ button to visualize the loaded dataset. An example of such a plot is shown below.





7. An independent spreadsheet editor is also available for users who prefer to inspect or edit numeric data directly, as shown above. Selecting the ‘Open Spreadsheet Editor’ button opens a pop-up interface that supports essential spreadsheet-style interactions. Because most users are already familiar with spreadsheet environments, the guide does not elaborate on its internal functionalities. As noted earlier in Section 3, this feature is not intended to replace

full-fledged spreadsheet tools but to provide a lightweight, built-in editing environment for convenience. Although limited in functionality, it offers enough flexibility for inspecting and managing different point datasets during formatting.

8. The ‘Clear All’ button performs a complete reset of the interface. It removes all loaded or pasted data, clears any formatted output, and resets the plot area. This allows the user to start over at any time with a clean workspace.