# Enhanced Protein Viewer – Usage Guide

Welcome to the **Enhanced Protein Viewer,** a browser-based tool to load, explore, and export 3D protein structures. This tool allows you to view PDB files interactively and export models as STL files for 3D printing.

Link: https://claireprice.github.io/pdb-to-stl/

**Getting Started**

1. Download or Clone the Repository

```bash

git clone https://github.com/claireprice/pdb-to-stl.git

cd pdb-to-stl

1. Open the Application
   * Open index.html in your web browser (Chrome, Firefox, Safari, Edge).

Alternatively, visit the [live version](https://claireprice.github.io/pdb-to-stl/).

**Loading a PDB File**

You can load a protein structure in two ways:

**1. Upload from Your Computer**

* Click the **“Choose File”** button.
* Select a .pdb file from your files.
* The visualisation will load automatically.

**2. Paste a PDB URL**

* Enter a direct URL to a .pdb file (e.g. https://files.rcsb.org/download/1CRN.pdb)
* Click **“Load from URL”**

**Navigating the Viewer**

* **Rotate**: Left-click and drag
* **Zoom**: Scroll wheel
* **Pan**: Right-click and drag
* **Tooltip**: Hover over atoms to view details

**Visualisation Controls**

* **Show Atoms**: Display atoms as coloured spheres
* **Show Bonds**: Display bonds between atoms
* **Show Ribbon**: Display a backbone ribbon using CA atoms
* **Ribbon Thickness**: Adjust the ribbon diameter
* **Bond Distance**: Tune the threshold for bond detection
* **Colour Scheme**:
  + *By Element*
  + *By Chain*
  + *By Residue*

**Presets**

Use predefined styles to quickly switch between views:

* **Cartoon**
* **Ball-and-Stick**
* **Backbone Only**
* **Publication Ready**

**Exporting**

**Export as STL**

* Click **“Export STL”** to download a 3D-printable model.
* Works with most slicers (e.g. Cura, PrusaSlicer).
* Ideal for educational and research applications.

**Export Image**

* Click **“Export Image”** to save a PNG snapshot of the current view.

**Reset & Defaults**

* **Reset View**: Re-centre and reorient the structure
* **Reset to Defaults**: Restore default settings and view

**Tips**

* For better performance with large structures, enable **Performance Mode** (loads only CA atoms).
* The exported STL files are great for FDM or resin printing.
* Structure not loading? Ensure it's a valid .pdb file.

**About**

This tool is part of the project:  
[**claireprice.github.io/pdb-to-stl**](https://claireprice.github.io/pdb-to-stl/)  
Developed to enable easy visualisation and physical modelling of molecular structures.