Integrated Web-based Visualization for FreeFEM

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Abstract:
FreeFEM provides ffglut for a built-in visualization interface based on the GLUT library. However, OpenGL will be deprecated in newer macOS. With the innovation of web technology, web-based visualization has become an efficient way to interact with numerical results cross-platform. In this work, we introduce an intuitive web interface for the visualization of results in 2D or 3D calculated by FreeFEM. With our web-based interface, the users can easily access data interactivity and decide what to show on screens and figures on modern browsers. We integrate a lightweight Hypertext Transfer Protocol (HTTP) server package in our FreeFEM dynamic loading module written in the programming language C++.