

Student Research and Creative Activity Fair

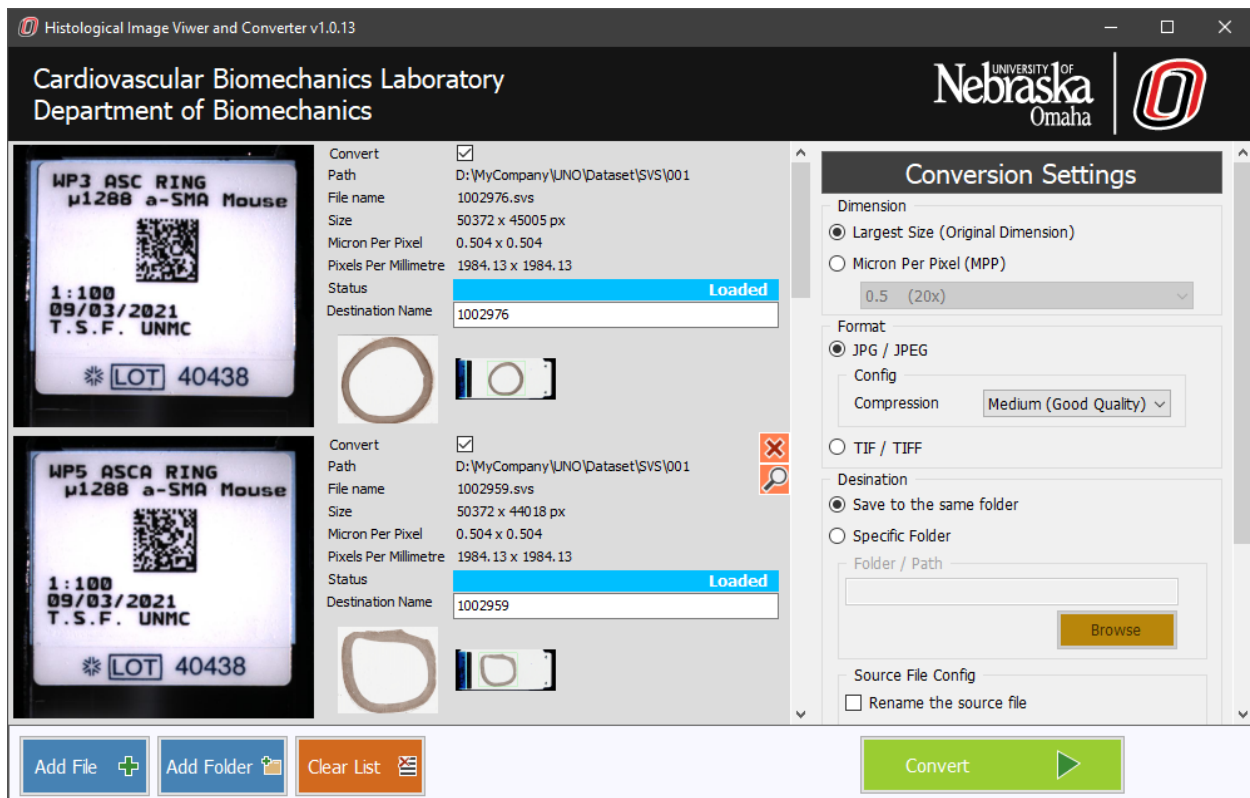
Design and Development of Software with a Graphical User Interface to Display and Convert Multiple Microscopic Histology Images

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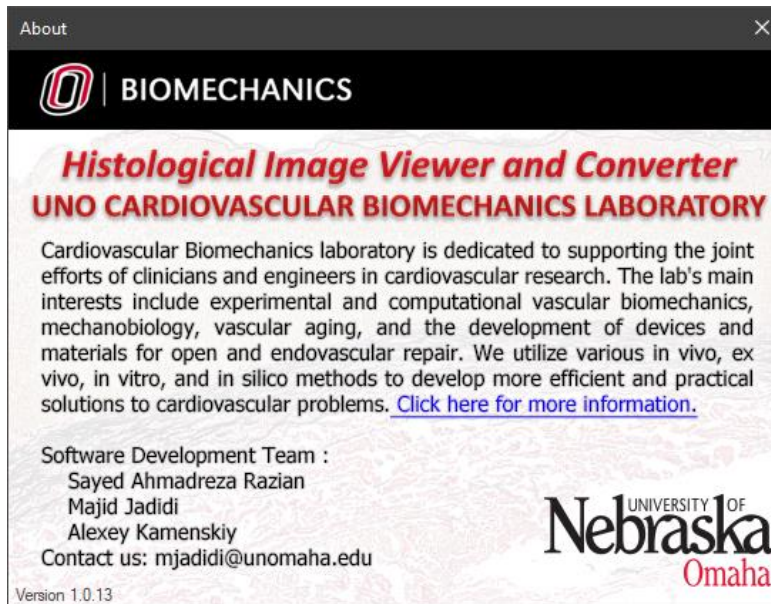
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Histological images are widely used to assess the microscopic anatomy of biological tissues. Recent advancements in image analysis allow the identification of structural features on histological sections that can help advance medical device development, brain and cancer research, drug discovery, vascular mechanobiology, and many other fields. Histological slide scanners create images in SVS and TIFF formats that were designed to archive image blocks and high-resolution textual information. Because these formats were primarily intended for storage, they are often not compatible with conventional image analysis software and require conversion before they can be used in research. We have developed a user-friendly software with a graphical user interface (GUI) that allows simultaneous conversion of multiple histological images to research-friendly formats. Users can navigate the images using their thumbnails in the image gallery and extract the main and associated layers with specified resolution. Our software relies on high-performance CPUs to provide a preview of files and utilizes multi-thread operation for faster image conversion. The GUI makes the operation user-friendly, whereby each user can set up image attributes such as desired dimension, resolution, etc. We have successfully used this software to view and convert 100 SVS and 100 TIF files. Our software will be useful for pathologists, tissue engineers, cardiovascular researchers, or other scientists who analyze histological images. Its key advantages include the ability to convert to multiple research-friendly image formats, a user-friendly GUI, and a quick preview and batch converter options.



The main window of the Graphical User Interface (GUI) of our Histological Image Viewer and Converter.



About window.

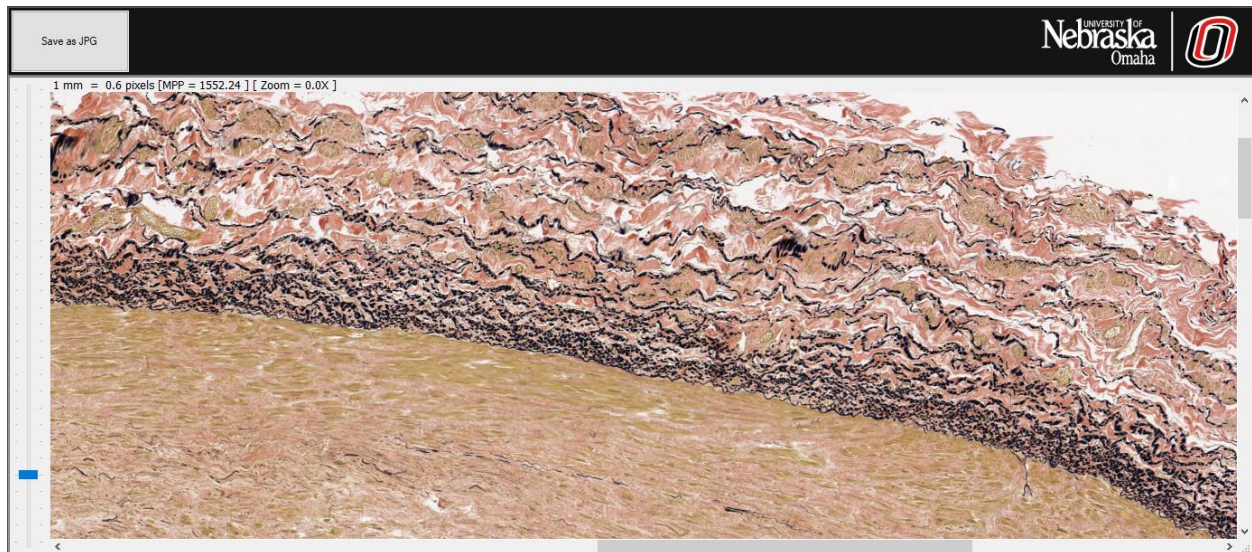


Image preview window.