

Using CombineZ5

Katherine Lindquist

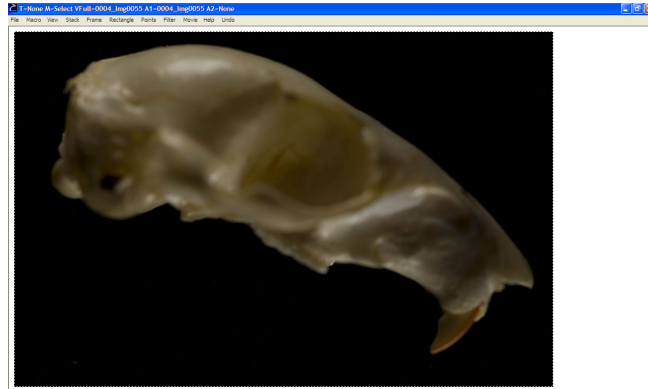
CombineZ5 is a program developed by Alan Hadley to combine stacks of images taken at different levels of focus into one image with unlimited depth of field. This is extremely useful in macro photography since at higher magnifications the depth of field is only a few millimeters or less. By taking several photographs each focused at a different level and then combining them using CombineZ5, universal focus can be achieved.



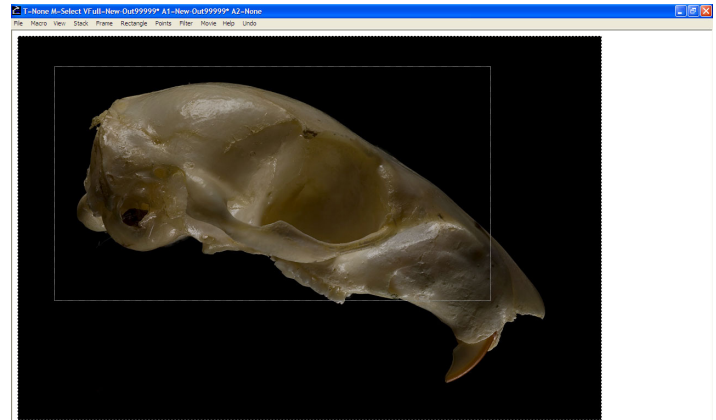
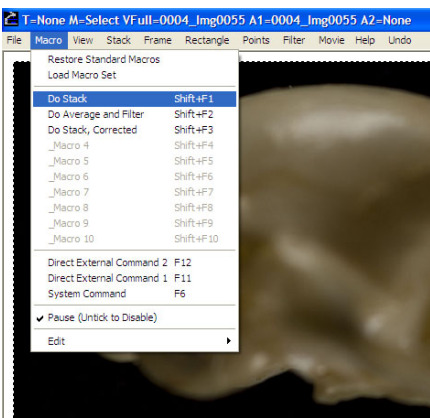
The first step in making a stack of images is to take the images. All images shown here were taken using a Nikon D70 with a 60mm macro lens. The camera was mounted on a copy stand and the subject was placed on an adjustable labjack. It is much easier to focus on different parts of the subject by moving the subject itself than by adjusting the focus through the lens or moving the camera. Using the labjack allows the subject to be moved in and out of the range of focus without adjusting the camera.



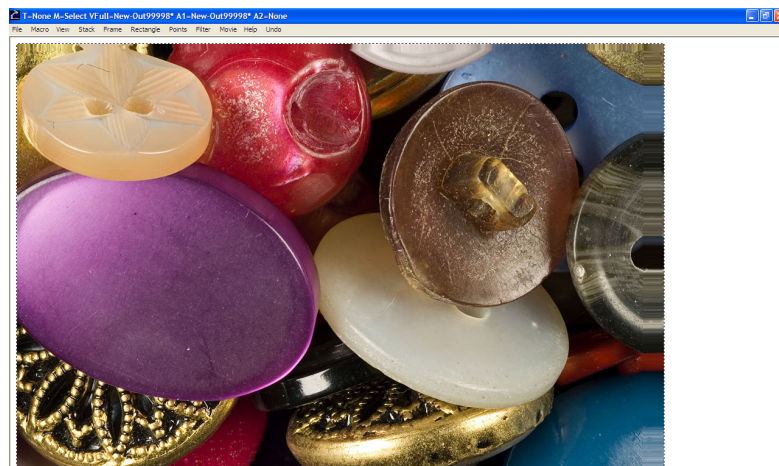
Once the images have been acquired they can be uploaded into CombineZ5. Opening the program and selecting File > *New will open a browser where the images can be selected. When all the images have been selected, clicking on Open will load them into the program. An action window will display the progress and when it is completed the stack will be displayed in the main program window with the top image visible. This example uses a stack of fourteen images, but more or less can be used depending on the depth of the subject and how many images are needed to photograph every part in focus.



Once the images have been loaded into the program, the stack can be combined. This is done by selecting Macro > Do Stack. The action window will appear once again while the program finds the best focus in each image and combines the stack into the final image. The combining may take several minutes to complete, depending on the number of images. When the image has been made, it will open in the main program window. The final image can be saved by selecting File > Save Frame/Picture As Or the image can be cropped and saved by using the left mouse button to drag a rectangle around the area to be saved and selecting File > Save Rectangle As.



There are other functions and features in the CombineZ5 program, but the most basic and most frequently used is Do Stack. If the images in the stack have detail at the edges, an artifact will be created in the final image due to the fact that the program creates a boarder around each image in the stack. This can easily be cropped out using the Save Rectangle As feature or another photo editing program.



CombineZ5 can be downloaded free of charge for PC computers only at
<http://www.hadleyweb.pwp.blueyonder.co.uk/>



Katherine Lindquist is a student in the Biomedical Photographic Communications program at the Rochester Institute of Technology. She may be contacted at kl11521@rit.edu