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4995 PFP

Project Proposal

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AAC: ASCII Animation Converter

Given a directory name, my program will convert every png image in a folder to an ASCII graphics equivalent, and then output those ASCII equivalent images to the console as frames in an animation.

I will use GeeksforGeeks's image to ASCII image converter written in python as well as StackExchange user Lescurel's image to ASCII program written in Haskell, as a guide for writing my own image to ASCII conversion in Haskell. I'm still doing research on graphics modules, but I'm currently planning to use the JuicyPixels module for handling images and pixels. Converting a single image can then be extended to converting an animation by repeating the same image to ASCII conversion process for each frame in an animation.

I see two main opportunities for parallelism in this program. Firstly, the necessity of converting a set of images is embarrassingly parallel. Secondly, the task of converting groups of grayscale pixels to a corresponding ASCII character requires breaking an image into pieces, and then looping over those pieces performing an independent task. This notion of breaking something apart and performing self-contained tasks on those pieces lends itself well to parallelism, similar to how calculating groups of points' distances from different centers in the K-means problem could be parallelized in lecture.

To increase complexity in this project, I could scale to large inputs with an animation of many frames, or possibly handle color images with the System.Console.Rainbow module.

Sources:

- https://www.geeksforgeeks.org/converting-image-ascii-image-python/

- https://codereview.stackexchange.com/questions/263823/haskell-convert-an-image-to-ascii-art

- https://hackage.haskell.org/package/JuicyPixels-3.3.6/docs/Codec-Picture.html

- https://hackage.haskell.org/package/rainbow-0.4.0.0/docs/System-Console-Rainbow.html