Rubric – Predicting Music Genre from Images

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Submission format: Python code file(s) in .py format and explanation in PDF format

Individual Assignment

General Description: Submit a Python file (or multiple) containing the code you used to complete this project as well as a file in PDF format containing an explanation for the code you wrote and the reasoning behind your decision for which image manipulation method to use.

Why am I doing this? This assignment will give you some exposure to a popular machine learning modeling method used today: the convolutional neural network. This machine learning method is used in many circles today, from voice assistant creation and optimization to self-driving. Even though the code for the convolutional neural network model is provided for you and will complete the assignment in its given state, feel free to mess around with it. Are there parts of the code that you can change or other uses that it might work for other than the images provided for this assignment to predict music genres? This assignment will also give you the chance to use your critical thinking skills and make a decision using results that you create for yourself.

What am I going to do? As stated in the assignment description, several files have been provided for you with examples of how to modify images in the ways described and also for running the convolutional neural network. All of these files are available in a GitHub repository at https://github.com/akippenhan749/CaseStudyPredictingMusicGenre. You can clone or fork this repository to get all of the materials you need on your local machine. If you need help cloning, visit the GitHub Docs article on how to do so here. If you wish to instead fork the repository and need a reference guide, you can reference the GitHub Docs article here. About 3000 album art images spanning the genres: alternative, country, hip-hop, jazz, pop and rock have been provided for you. Using these provided images and references, manipulate the images through flipping, grayscaling and brightness adjustment and run them through the convolutional neural network code. If there is another image manipulation method that you think might work better than the options provided here, feel free to include that also for extra credit but only after completing the ones already provided. For the explanation document, include a description of the code you used as well as a description of why you chose the image manipulation method that you did.

Tips for success:

- Exercise you critical thinking skills. This is one of the most important parts of this assignment!
- Don't be shy to ask for help! Google can also be your friend for coding issues. :)
- The rubric below has all the requirements to get full credit for this assignment. If you pay attention to what it says and your submission meets the requirements it specifies, you'll be set!
- Have fun.

How will I know I have Succeeded? You will meet the expectations for this assignment when you follow the criteria in the rubric below.

Spec Category	Spec Details

Formatting	• Code file(s)
	  ○ Language: Python (.py file)
	  ○ Put your name, the date and the filename on one line space-separated at the top of the file in a comment
	• Explanation document
	  ○ PDF format
	  ○ Order
	  ▪ Title
	  ▪ Your name and the date
	  ▪ One sentence explanation of the image manipulation method used and why
	  ▪ One paragraph describing your code
	  ▪ Two paragraphs describing which image manipulation method you used and why

Code File(s)	• Your code should be clean and readable. • Comment your code appropriately so it can be understood and followed by someone else. • Your code must be written in Python and placed in a file with a '.py' extension. Any other language or file format will not be accepted. As the reference code is provided in Python, this should not be an issue.
Explanation Document	• Goal: This should be the one-stop reference to all your content for this assignment. • Follow the formatting listed above! This will ensure your document is nicely formatted and easily readable. • The one sentence explanation should serve as a short and sweet summary of the two paragraphs you will write on your choice of image manipulation method. Make it to the point. • The one paragraph code description should walk through the code you used and describe its functionality so someone else could easily pick it up, fully understand it and work with it. • The two paragraphs on your chosen image manipulation technique and justification of it should expand on the short one sentence description at the top of the document. Start with which method you chose and support your decision with information from your findings.

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