

Machine Learning Prediction of Political Orientation using Portraits of US Congress Members

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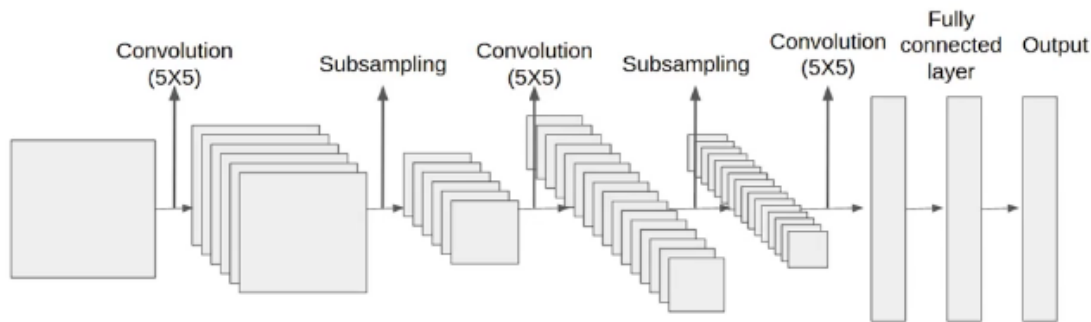


Fig. 1. LeNet-5 Architecture.

ABSTRACT GOES HERE!!!!

Additional Key Words and Phrases: datasets, neural networks, web-scraping, politics, facial analysis, CNN, classification

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1 INTRODUCTION

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2 METHODS

The dataset for this project was obtained from the [US Congress Members](#) archive. Photos of each member as well as their party affiliation were recorded. Members with an affiliation of “independent” were removed. After data collection, the rows were shuffled, and the dataset was split into training (80%), validation (5%) and testing (15%). Images were also resized to 120 by 100 pixels (height by width) and converted to grayscale. Before CNN training, images were sequentially augmented thrice using the IMAGENET AutoAugment policy.



Fig. 2. Left: A subset of one batch before augmentation (64/128). Right: A subset of one batch after image augmentation (64/128).

3 RESULTS

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4 DISCUSSION

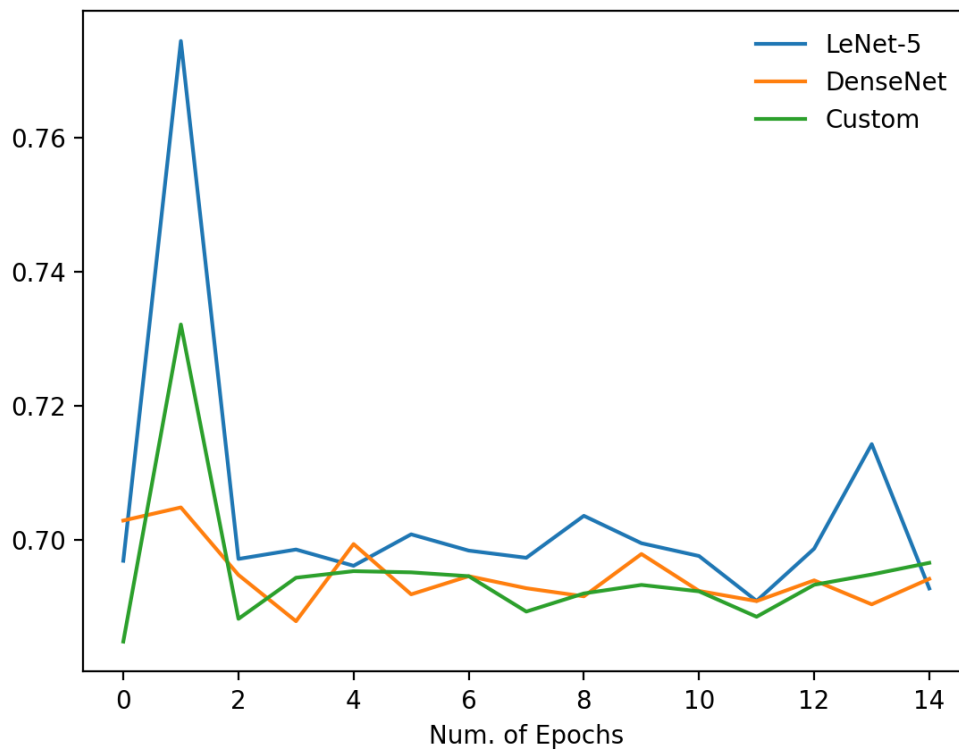


Fig. 3. The training cost over 15 epochs for the 3 architectures considered.

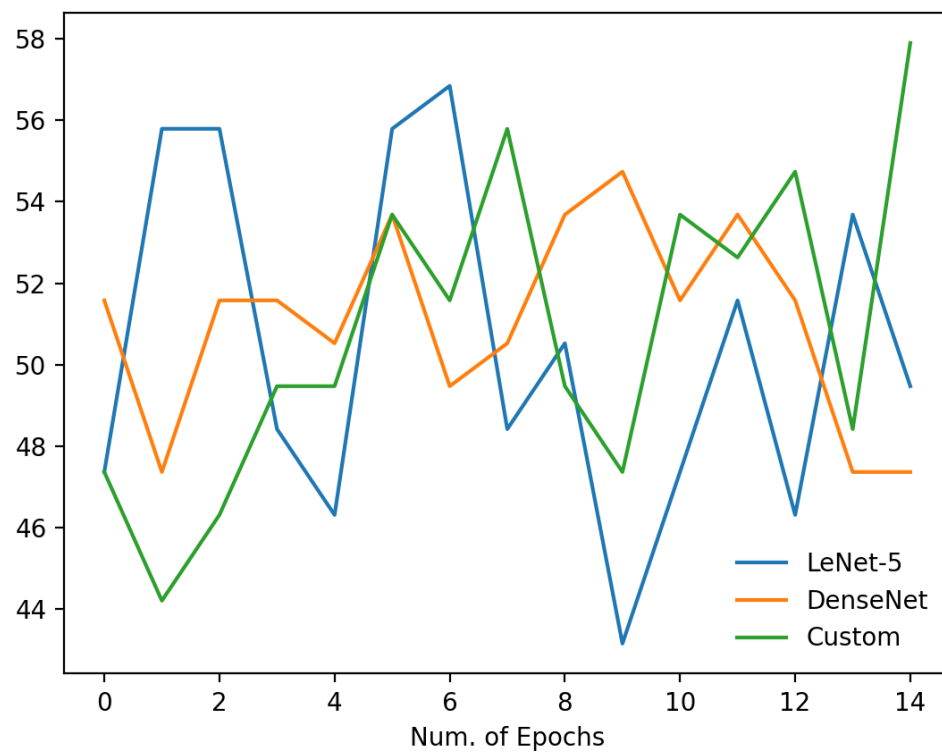


Fig. 4. The validation error over 15 epochs for the 3 architectures considered.

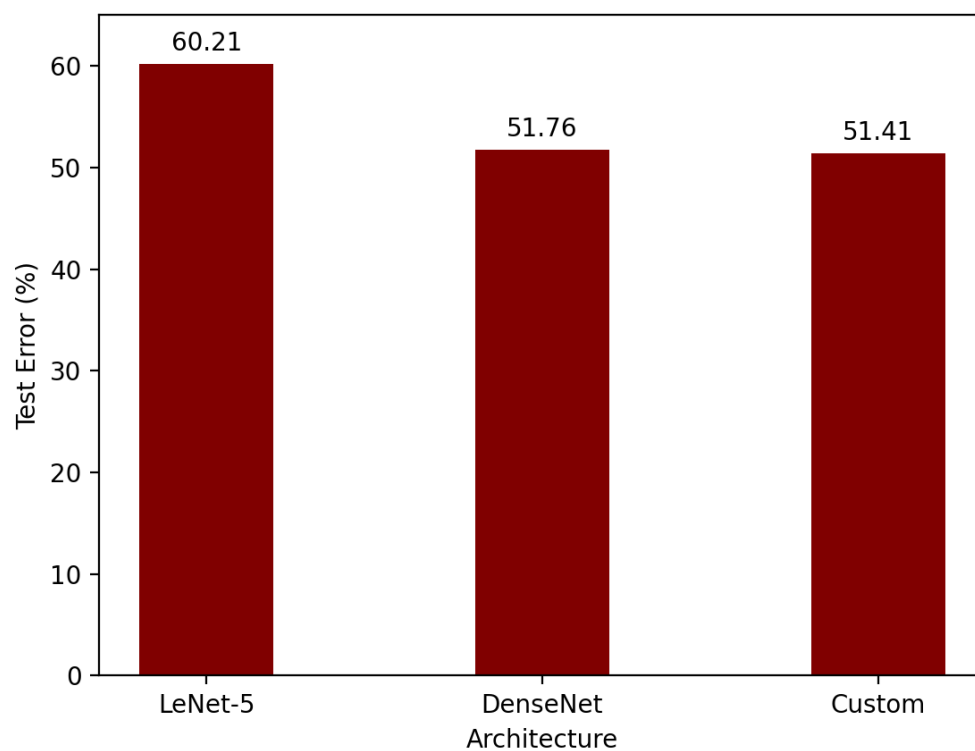


Fig. 5. The final testing error for the 3 architectures considered.