Georgian Handwritten Character Recognition Using Deep Learning

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During the research, a framework for recognizing handwritten Georgian characters using Convolution Neural Networks and transforming the input into another person's (currently Javakhishvili) was developed. For training the CNN model an extensive dataset was created with over 100 000 character samples. for Correction of recognized text 363 201 unique words were gathered. The framework has been deployed in the web and Windows, Linux, iOS operating systems.

Objective: to create an accurate character classifier for non-Latin handwritten characters.

Procedure: We manually gathered, scanned, and pre-processed images of over 120 000 handwritten Georgian and Armenian characters.

We developed and trained several neural network architecture, and settled on modified VGG-16 with SELU activations. After satisfying results were obtained, we worked on further inference on the collected dataset by creating a GAN-based handwriting style transferer.

Testing of the trained architectures was done on a cross-validation portion of the dataset set aside specifically for testing, as well as by allowing a number of volunteers to test the application in the real world setting

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