

## Data Augmentation for Automatic Graphical User Interface Generation Based on Generative Adversarial Network

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**Abstract :** As a branch of artificial neural network, deep learning is widely used in the field of image recognition, but the lack of its dataset leads to imperfect model learning. By analysing the data scale requirements of deep learning and aiming at the application in GUI generation, it is found that the collection of GUI dataset is a time-consuming and labor-consuming project, which is difficult to meet the needs of current deep learning network. To solve this problem, this paper proposes a semi-supervised deep learning model that relies on the original small-scale datasets to produce a large number of reliable data sets. By combining the cyclic neural network with the generated countermeasure network, the cyclic neural network can learn the sequence relationship and characteristics of data, make the generated countermeasure network generate reasonable data, and then expand the Rico dataset. Relying on the network structure, the characteristics of collected data can be well analysed, and a large number of reasonable data can be generated according to these characteristics. After data processing, a reliable dataset for model training can be formed, which alleviates the problem of dataset shortage in deep learning.

**Keywords :** GUI, deep learning, GAN, data augmentation

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