

In this work we present a novel approach to network embedding for neural architecture search — info-NAS. The model learns to predict the output features of a trained convolutional neural network on a set of input images. We use the NAS-Bench-101 search space as the neural architecture dataset, and the CIFAR-10 as the image dataset. For the purpose of this task, we extend an existing unsupervised graph variational autoencoder, arch2vec, by jointly training on unlabeled and labeled neural architectures in a semi-supervised manner. To evaluate our approach, we analyze how our model learns on the data, compare it to the original arch2vec, and finally, we evaluate both models on the NAS-Bench-101 search task and on the performance prediction task.