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We need to talk about random seeds

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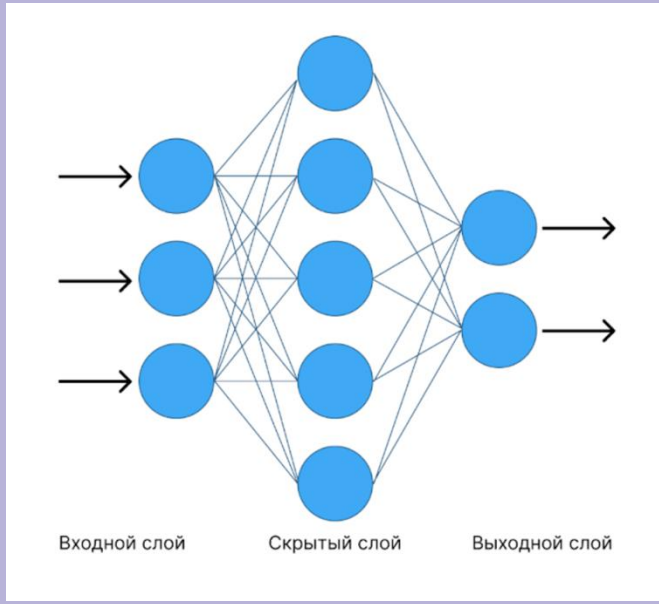
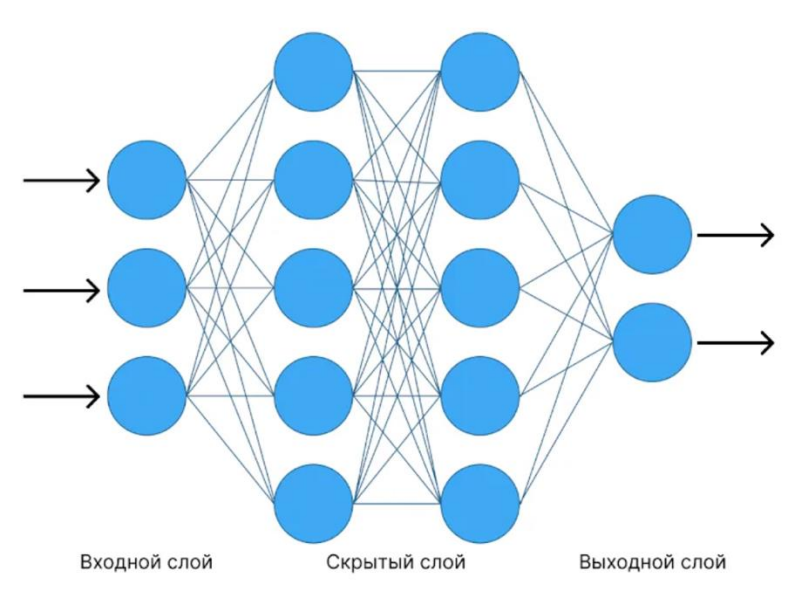
Abstract

Modern neural network libraries all take as a hyperparameter a random seed, typically used to determine the initial state of the model parameters. This opinion piece argues that there are some safe uses for random seeds: as part of the hyperparameter search to select a good model, creating an ensemble of several models, or measuring the sensitivity of the training algorithm to the random seed hyperparameter. It argues that some uses for random seeds are risky: using a fixed random seed for "repli-

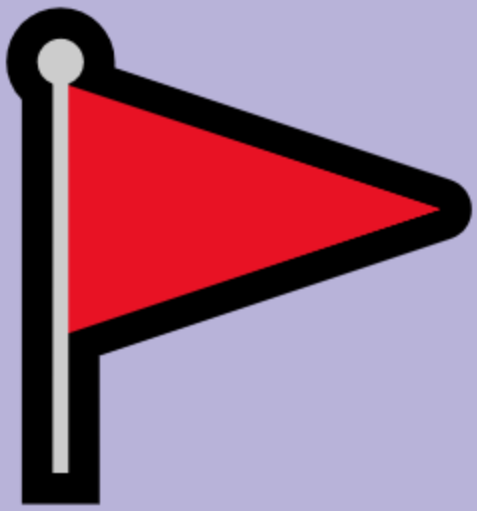
specific optimizer setups (Mosbach et al., 2021), ensemble methods (Risch and Krestel, 2020), and explicitly tuning the random seed like other hyperparameters (Dodge et al., 2020).

The NLP community thus has some awareness of the problems that random seeds present, but it is inconsistent in its approaches to solving those problems. The remainder of this opinion piece first presents a taxonomy of different ways that neural network random seeds are used in the NLP community, explaining which uses are safe and which are



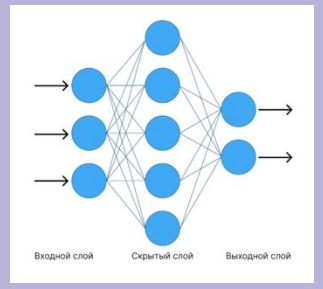


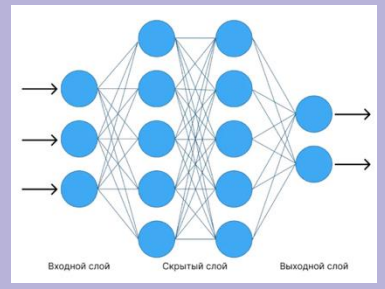
Выбрать один сид ради воспроизводимости



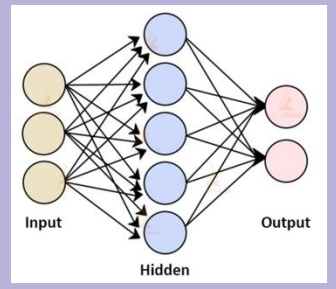
Выбрать один сид ради воспроизводимости

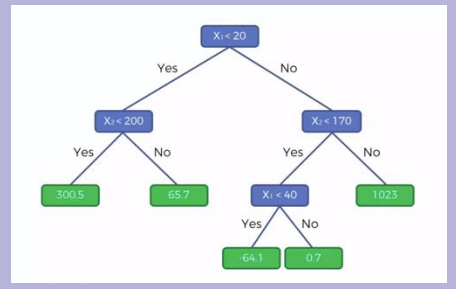
Выбор лучшей модели из семейства



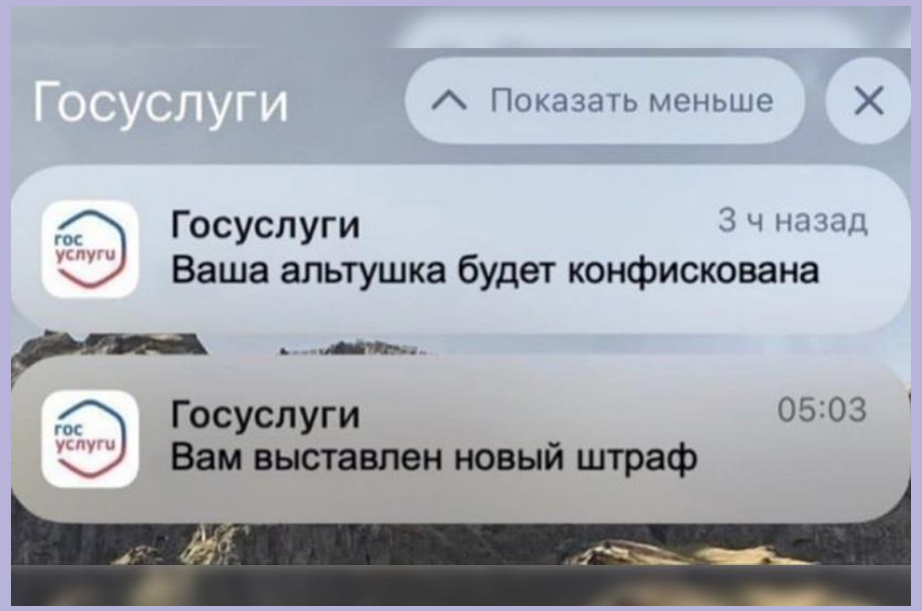


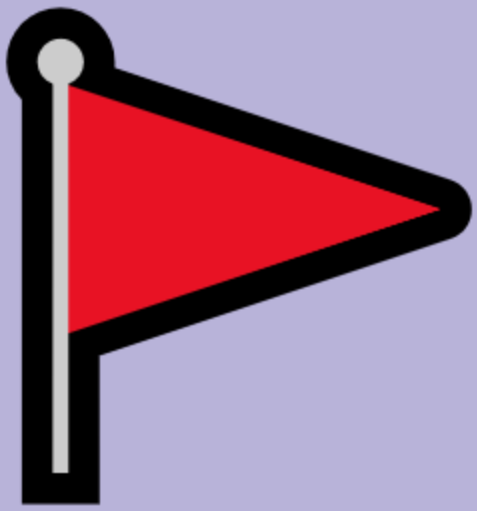
Сравнение семейств моделей





Неоч идеи с сидами при сравнении моделей





Неоч идеи с сидами при сравнении моделей

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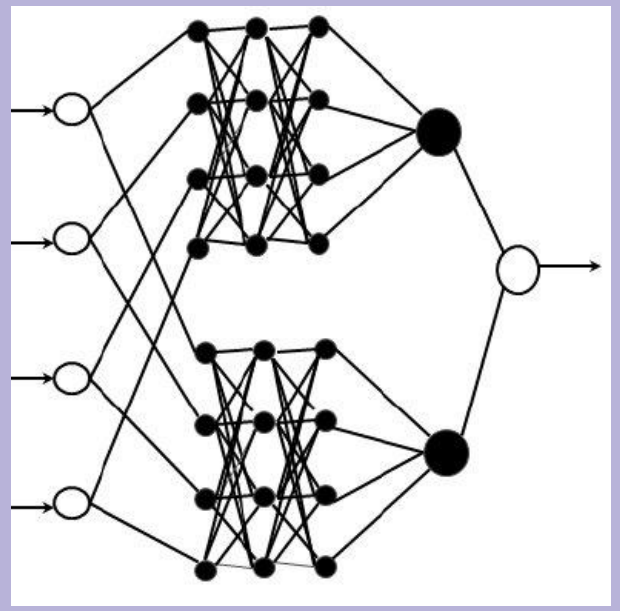
Подбирать сиды наравне с остальными гиперпараметрами



Ансамблировать версии модели с разными сидами

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Ансамблировать версии модели с разными сидами

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Анализировать чувствительность модели к сидам

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