Survey on Bugs/Problems in Deep/Machine Learning Systems

We thank you for your time spent taking this survey.
Your response has been recorded.

Below is a summary of your responses

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Your email (Optional):

What is your current job title?
(For students, please, indicate which degree you are studying now)

What is your overall work experience?

What is your work experience with Deep/Machine Learning Systems?

What type of Deep/Machine learning systems have You developed/implemented?
(For Example, Supervised/Unsupervised/Reinforcement Learning/etc.)

Which problems were You trying to tackle using DL/ML networks?
(For Example, Image Classification/Speech Recognition/etc.)

Which programming languages and frameworks have You been using?
(For Example, Java/Python/Tensorflow/Keras/Pytorch/etc.)

Have You ever encountered problems related to:

			How severe was the problem/bug?			How much effort was required to identify and fix the problem/bug?		
	Yes	No	Minor	Major	Critical	Low	Medium	High
Hyperparameters Problems related to suboptimal hyperparameter (learning rate, batch size, number of epochs, etc.) tuning leading to low accuracy/classification score/etc.	○	○	○	○	○	○	○	○
Loss Function Problems related to loss functions. For example, wrong selection of loss function, wrong implementation of custom loss function, etc.	○	○	○	○	○	○	○	○
Validation/Testing Problems related to the validation of the model. For example, problems related to the validation set, to the selection of wrong performance metric, incorrect train/test data split, etc.	○	○	○	○	○	○	○	○
Preprocessing of Training Data Problems related to missing or wrongly implemented preprocessing step. For example, problems concerning missing/wrong training data normalisation, cleaning, formatting, etc.	○	○	○	○	○	○	○	○
Optimiser Problems related to the wrong selection of an optimisation function or wrong tuning of the parameters for optimisation functions.	○	○	○	○	○	○	○	○
Training Data Problems related to the quality of training data. For example, wrong labels for training data, wrong selection of features, insufficient training data, unbalanced training data, etc.	○	○	○	○	○	○	○	○
Training Process								

Training Process
Problems related to the training process. For example, wrong management of memory resources, problems concerning data augmentation, size of models too big to fit into available memory, etc.

	Yes	No	How severe was the problem/bug? Minor	Major	Critical	How much effort was required to identify and fix the problem/bug? Low	Medium	High
	○	○	○	○	○	○	○	○

Have You ever encountered problems related to:

	Yes	No	How severe was the problem/bug? Minor	Major	Critical	How much effort was required to identify and fix the problem/bug? Low	Medium	High
Model Type & Properties Problems related to selection of wrong model type, wrong initialisation of a model, suboptimal/wrong network structure.	○	○	○	○	○	○	○	○
Missing/Redundant/Wrong Layer Problems related to missing/redundant layer(s) or to the wrong selection of layer(s') type.	○	○	○	○	○	○	○	○
Layer Properties Problems related to wrongly defined layer properties. For example, wrong input/output shape, suboptimal number of neurons in the layer, mismatch of the dimensions of connected layers, etc.	○	○	○	○	○	○	○	○
Activation Function Problems related to wrong/inadequate selection of activation function. For example, using a 'sigmoid' activation function instead of 'relu' one, etc.	○	○	○	○	○	○	○	○
Wrong Input Problems related to the wrong shape/type/format of an input to a layer/API method.	○	○	○	○	○	○	○	○
Wrong Tensor Shape Problems related to wrong tensor shape where it is not considered as an input to a layer/method.	○	○	○	○	○	○	○	○

Have You ever encountered problems related to:

	Yes	No	How severe was the problem/bug? Minor	Major	Critical	How much effort was required to identify and fix the problem/bug? Low	Medium	High
GPU Usage Problems related to the usage of GPU devices. For example, wrong reference to GPU device, missing transfer of data to the GPU, wrongly implemented data transfer function, GPU tensor used instead of CPU tensor, etc.	○	○	○	○	○	○	○	○
API Problems related to the usage of APIs. For example, missing API call, issues caused by the usage of a deprecated API or the usage of the API in a wrong way, etc.	○	○	○	○	○	○	○	○

Have you ever encountered any problems/bugs related to deep/machine learning that have not been mentioned in this survey? If yes, could you, please, describe them:

Any other comments: