Task name	Total APK's	Unique APIs	Classes	Training Samples	Testing Samples
Task 1	61,730	37,107	2	30,897	30,000
	Total Samples	**Features**	**Classes**	**Training Samples**	**Testing Samples**
Task 2	100,000	9	2	70,000	30,000
Task 3	100,000	12	3	70,000	30,000

Table 1 Statistics of data set

DNN network topology	Task Name	Accuracy
DNN 1 layer	Task 1	0.712
DNN 2 layer	Task 1	0.811
DNN 3 layer	Task 1	0.891
DNN 4 layer	Task 1	0.964
DNN 5 layer	Task 1	0.978
DNN 1 layer	Task 2	0.734
DNN 2 layer	Task 2	0.852
DNN 3 layer	Task 2	0.938
DNN 4 layer	Task 2	0.991
DNN 5 layer	Task 2	0.992
DNN 1 layer	Task 3	0.721
DNN 2 layer	Task 3	0.838
DNN 3 layer	Task 3	0.912
DNN 4 layer	Task 3	0.981
DNN 5 layer	Task 3	0.985

Table 2 Summary of test results

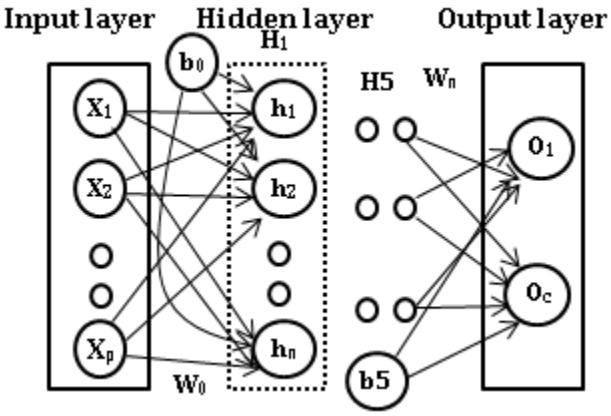

Fig 1 Proposed deep neural architecture (DNN). All connections and units are not shown, can be considered as representative of DNN

Layers	Type	Output shape	Number of units	Activation function	Parameters task1&task3-(1,369,603) task2-(1,369,615)
0-1	Fully-connected	(None, 1024)	1024	ReLU	13312
1-2	Batch Normalization	(None, 1024)			4096
2-3	Dropout (0.01)	(None, 1024)			0
3-4	Fully-connected	(None, 768)	768	ReLU	787200
4-5	Batch Normalization	(None, 768)			3072
5-6	Dropout (0.01)	(None, 768)			0
6-7	Fully-connected	(None, 512)	512	ReLU	393728
7-8	Batch Normalization	(None, 512)			2048
8-9	Dropout (0.01)	(None, 512)			0
9-10	Fully-connected	(None, 256)	256	ReLU	131328
10-11	Batch Normalization	(None, 256)			1024
11-12	Dropout (0.01)	(None, 256)			0
12-13	Fully-connected	(None, 128)	128	ReLU	32896
13-14	Batch Normalization	(None, 128)			512
14-15	Dropout (0.01)	(None, 128)			0
15-16	Fully-connected	task1- (None, 1) task2- (None, 3) task3- (None, 1)	task1- 1 task2- 3 task3- 1	task1&task3-sigmoid task2-softmax	task1&task3-129 task2-387
16-17	Batch Normalization	(None, 1)	task1- 1 task2- 3 task3- 1		task1&task3-4 task2-12

Table 3 Structure and configuration details of proposed DNN Architecture