#### Federal State Autonomous Educational Institution for Higher Education National Research University Higher School of Economics

Information Security

### BACHELOR'S THESIS

#### RESEARCH PROJECT

#### "Hybrid Fuzzing of the PyTorch Framework"

Prepared by the student of group 191, 4th year of study, Larionov-Trichkine Theodor Arsenij

Supervisor:

Petrenko Alexander Konstantinovich

Consultant:

Kuts Daniil Olegovich

# Contents

<b>A</b> :	nnot	ation																		2
1	Intr	oductio	n																	3
	1.1	Citing										•		•						3
	1.2	Graphs		•																3
	1.3	Tables																		4
$\mathbf{R}$	efere	nces																		5

# Annotation

Your annotation in English.

## Аннотация

Ваша аннотация на русском языке.

# ${\bf Keywords}$

 $\mathrm{NLP},\,\mathrm{CV},\,\mathrm{DL},\,\mathrm{ML},\,\mathrm{RL},\,\mathrm{GAN},$ 

### 1 Introduction

### 1.1 Citing

In this template you have to insert all your references in a special file called "bibliography.bib". It should be inserted in a special BibTeX format. It can be found easily via Google Scholar -> quotation sign -> BibTeX. You can find how it looks in ".bib" file.

After you have inserted your BibTeX citation into the ".bib" file, you can cite it in this document using Vaswani et al. 2017.

Or you can cite it in the following way: Kim et al. 2020.

### 1.2 Graphs

Graph 1.1 shows the results of the experiment.

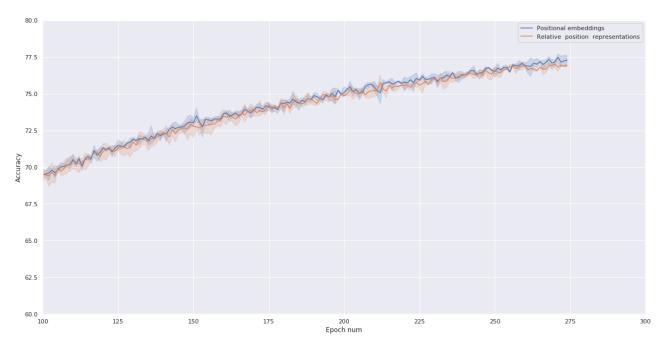


Figure 1.1: Graph sample

## 1.3 Tables

Table 1.1: Table example

		Val			Test			
	Prec	Rec	F1	Prec	Rec	F1	nodes	subtokens
run #1 run #2 run #3	0.4894 0.4887 0.4820	0.3775 0.3739 0.3751	0.4263 0.4237 0.4219	0.4824 0.4891 0.4838	0.3683 $0.3724$ $0.3677$	0.4177 0.4228 0.4178	10029 10039 10037	179 177 180
mean variance	<b>0.4867</b> 0.0041	<b>0.3755</b> 0.0019	<b>0.4239</b> 0.0022	<b>0.4851</b> 0.0036	<b>0.3695</b> 0.0025	<b>0.4195</b> 0.0029		

## References

- 1. Seohyun Kim et al. "Code prediction by feeding trees to transformers". In:  $arXiv\ preprint\ arXiv:2003.13848\ (2020).$
- 2. Ashish Vaswani et al. "Attention is all you need". In:  $arXiv\ preprint\ arXiv:1706.03762$  (2017).