WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF ELECTRONICS

FIELD: Computer Science
SPECIALIZATION: Internet Engineering (INE)

MASTER OF SCIENCE THESIS

Deepfake analiza

Badania metod zmiany obiektów na obrazach z wykorzystaniem technologii Deepfake

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GRADE:

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Chapter 1

Introduction

1.1 Abstract

About problem: what is deepfake, why it's impactful in these days, possible use-cases.

1.2 Objective and assumptions

What I'm assuming, what is my expected outcome

1.3 Naming conventions and acronims

Explain all names like CNN, VAE, itp.

Chapter 2

Theoretical background

2.1 Artificial neural network

Explain what are ANN, its training and types like CNN

2.2 Deepfake

Maybe change this section name from deepfake to CNN and explain what is CNN instead of explaining it in previous section?

Chapter 3

Deepfake methods

3.1 Variational auto encoder

Idea behind deepfake generated by VAE without CNN

3.2 Convolutional variational auto encoder

Idea behind deepfake generated by VAE with CNN

3.3 CycleGAN

Idea behind deepfake generated by GAN. Shouldn't it be called VAE-GAN???

3.4 CycleGAN

Describe what is it, what it consists of, what are its applications, why I thought it should work for deepfake. Explain how it works exactly. Show learning process and results (good ones: horses to zebras and bad ones: face to face). Idea behind deepfake generated by CycleGAN. Explain why I'm assuming it should it work?

Chapter 4

Implementation

4.1 Technologies

4.1.1 Software and Libraries

As in title...

4.1.2 Hardware

As in title ... (My hardware, Google colab, Google cloud?)

4.2 Datasets

4.2.1 Datasets description

How dataset for deepfake learning should look like Used Datasets: VoxCeleb (description)

4.2.2 Data pre-processing

how I prepared my own datasets. All operations from videos to npz files

4.3 Network learning

Detailed description of implementation of each method. What are the topologies, what callbacks were used, why those parameter, why those batches itp

4.3.1 VAE

4.3.2 GAN

4.3.3 CycleGAN

Chapter 5

Results

Presentation and discussion of results for each method

Chapter 6

Conclusions

Bibliography

[1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley, Reading, Massachusetts, 1993.

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