## POLITECHNIKA BIAŁOSTOCKA Wydział Informatyki

#### PRACA DYPLOMOWA INŻYNIERSKA

# TEMAT: SKELETAL ANIMATION USING INVERSE KINEMATICS IN THE UNITY ENGINE

ŁUKASZ BIAŁCZAI	WYKONAWCA:
nodnis	

PROMOTOR: DR INŻ. ADAM BOROWICZ

BIAŁYSTOK 2022 r.

#### **Contents**

1 Introduction			
	1.1	Motivation	1
	1.2	Problem Formulation	1
2	Rela	ated Work	2
	2.1	Overview	2
	2.2	Use Cases	2
	2.3	Advantages and Disadvantages	2
3	Inve	erse Kinematics in the Unity Engine	3
	3.1	FABRIK implementation	3
	3.2	Spider Movement	3
		3.2.1 Project Setup	3
		3.2.2 Scripts	3
	3.3	Human Animation Sequence	3
		3.3.1 Project Setup	3
		3.3.2 Scripts	3
4	Exp	eriments	4
5	Con	elucion	5

#### 1. Introduction

- 1.1 Motivation
- 1.2 Problem Formulation

#### 2. Related Work

- 2.1 Overview
- 2.2 Use Cases
- 2.3 Advantages and Disadvantages

#### 3. Inverse Kinematics in the Unity Engine

- 3.1 FABRIK implementation
- 3.2 Spider Movement
- 3.2.1 Project Setup
- 3.2.2 Scripts
- 3.3 Human Animation Sequence
- 3.3.1 Project Setup
- 3.3.2 Scripts

### 4. Experiments

#### **5. Conclusion**

#### **Bibliography**

- [1] Jasvir Nagra, Clark D. Thomborson, and Christian S. Collberg. A functional taxonomy for software watermarking. In *ACSC*, pages 177–186, 2002.
- [2] ISO/IEC-9126, International Standard ISO/IEC. In *Information technology: Software product evaluation: Quality characteristics and guidelines for their use*. International Standards Organisation, 1991.
- [3] http://www.tex.ac.uk/cgi-bin/texfaq2html?label=multirow.
- [4] http://www.texample.net/tikz/examples/computer-science-mindmap/.
- [5] http://www.ctan.org/.
- [6] H. Partl i inni T. Oetiker. Nie za krótkie wprowadzenie do systemu LATEX.
- [7] Wojciech Myszka. W³¹czanie grafik do tekstów w L⁴TEX.
- [8] R. Kostecki. W miarê krótki i praktyczny kurs LATEX w  $\pi^e$  minut.
- [9] Forum gust. http://www.gust.org.pl/.
- [10] Wykresy TikZ & PGF Manual for Version 2.00.