

Contents

1	Introduction	1
1.1	What Is Artificial Intelligence?	1
1.2	A Brief Introduction to AI Techniques	3
1.3	A Brief Introduction to AI Technologies	5
1.4	Roles for AI In Education	7
1.5	Applications of AI	8
1.6	Is AI Needed in Higher Education?	9
1.7	AI in Higher Education	10
1.8	How Can AI Be Used to Enhance Education?	13
1.9	Artificial Intelligence in Higher Education	22
1.10	Companies Bringing AI to Use in Education.	23
1.11	Benefits of AI for Students.	25
1.12	Conclusion	25
	References.	25
2	Intelligent Tutoring Systems	29
2.1	What Is Meant by an Intelligent Tutoring System?	29
2.2	Need for an Intelligent Tutoring System	32
2.3	How Are Intelligence Tutoring Systems Influencing Education?	33
2.4	Benefits of Intelligent Tutoring Systems	33
2.5	Examples of Intelligent Tutoring Systems.	34
2.6	Intelligent Tutoring Systems and Online Learning	38
2.7	Development of an Intelligent Tutoring System	39
2.8	Limitations of Intelligent Tutoring Systems	41
2.9	The Future of Intelligent Tutoring Systems.	42
2.10	Conclusion	43
	References.	43
3	Natural Language Processing for Education	45
3.1	What Is NLP?.	45
3.2	Using NLP for Educational Activities	45
3.3	Benefits and Uses of NLP in Education.	47

3.4	Use Cases and Examples/Applications of NLP in Education	51
3.5	Conclusion	53
	References.	53
4	Predictive Analytics in Education	55
4.1	What Is Predictive Analytics?	55
4.2	Examples of Predictive Analytics	55
4.3	The Evolution of Predictive Analytics in Education	56
4.4	Reasons for Using Predictive Analytics in Higher Education	57
4.5	Predictive Analytics Significance in Education	59
4.6	How Is Predictive Analytics Changing Education?	59
4.7	How Does Predictive Analytics Help Higher Education?	60
4.8	Predictive Analytics Uses in Education	60
4.9	How to Use Predictive Analytics in Education	60
4.10	Predictive Analytics in Higher Education: Guiding Practices for Ethical Use	62
4.11	How to Implement Predictive Analytics for Education: Best Practices.	68
4.12	Advantages of Predictive Analytics in Education	69
4.13	Examples of Predictive Analytics in Education.	70
4.14	Case Studies.	71
4.15	The Benefits of Predictive Analytics in Higher and Further Education	74
4.16	How Colleges Should Go About Selecting a Predictive Analytics Vendor	75
4.17	Using Predictive Analytics in eLearning	78
4.18	The Future of Predictive Analytics in Education.	79
4.19	How to Prepare for the Future of Predictive Analytics for Education	80
4.20	Conclusion	81
	References.	81
5	AI for Mobile Learning	83
5.1	What Is Mobile Learning, and How and Why Did It Become Widespread?	83
5.2	Why Adopt Mobile Learning?	84
5.3	Key Characteristics of mLearning	85
5.4	What Are the Challenges That Mobile Learning in Education Overcomes?	86
5.5	Role of Mobile Learning Solutions in the Education Industry	87
5.6	Key Benefits of Mobile Learning for Higher Education Students.	89
5.7	The Impact of Mobile Learning on the Future of Education.	90
5.8	Pros and Cons of Mobile Learning	93
5.9	How Are Mobile Learning Apps Taking Advantage of AI?	94
5.10	How AI Is Changing the Mobile Learning Education Game.	96

5.11	Application of AI in Mobile Learning	98
5.12	Using AI to Create Personalized Learning Paths in Mobile Learning	100
5.13	The Challenges of AI-Based Mobile Learning	101
5.14	Conclusion	102
	References	102
6	AI-Enabled Gamification in Education	105
6.1	What Is Gamification?	105
6.2	Reasons to Implement Gamification	106
6.3	Gamification in an Educational Context	106
6.4	How Can Gamification Benefit Education?	107
6.5	How Can Gamification Transform Education?	108
6.6	Gamification and Artificial Intelligence	109
6.7	Educational Gamification Powered by AI	110
6.8	Incorporating AI Into Educational Games	112
6.9	Conclusion	113
	References	113
7	AR, VR, and AI for Education	115
7.1	What Is AR and VR?	115
7.2	How Does VR/AR Fit into the Education System?	116
7.3	Reasons to Use AR and VR in the Classroom	116
7.4	The Present Applications of VR and AR in Education	118
7.5	Examples of VR and AR in Education	124
7.6	Advantages and Challenges of Using AR in Education	125
7.7	Advantages and Challenges of Using Virtual Reality in Education	126
7.8	AI Meets VR and AR	129
7.9	How AR, VR, and AI Technology Make Education More Accessible	129
7.10	Benefits of Using VR, AR, or AI in a Classroom Setting	130
7.11	How VR, AR, and AI Will Transform Universities?	131
7.12	Conclusion	135
	References	135
8	AI-Based Online/eLearning Platforms	137
8.1	What Is an AI-Based eLearning Platform?	137
8.2	Why Use AI in eLearning?	137
8.3	How Are ML and AI Enhancing Online Learning?	138
8.4	Benefits of Using AI and ML in eLearning	139
8.5	Solutions for AI/ML in Online Education	141
8.6	Various Ways AI-Based eLearning Platform Can Shape Online Learning	142
8.7	Different Ways That AI Is Being Used in eLearning	143
8.8	Types of AI in Online Education	146

8.9	How Is AI Revolutionizing the eLearning Industry?.....	147
8.10	AI's Impact on eLearning	149
8.11	How AI Is Transforming eLearning?.....	150
8.12	Ways Artificial Intelligence Is Transformed eLearning.....	152
8.13	Examples of AI Being Used in eLearning	154
8.14	The Future of eLearning	155
8.15	Where Do You See the Future of AI in eLearning?.....	156
8.16	Potential Applications of AI in Remote Education	156
8.17	What Is AIaaS in eLearning?.....	157
8.18	Conclusion	157
	References.....	158
9	AI-Enabled Smart Learning	161
9.1	What Is Smart Education?.....	161
9.2	Smart Education vs. Traditional.....	162
9.3	Why Should You Choose a Smart Education System?	162
9.4	What Is Smart Learning?.....	164
9.5	Smart Learning: The Wave of Higher Education in the Future.....	165
9.6	Pillars of Smart Learning.....	166
9.7	The Challenges and Barriers to Smart Learning	167
9.8	AI Is the Next Step of Smart Learning	167
9.9	Applying Artificial Intelligence to Smart Learning	169
9.10	AI-Enabled Smart Learning Examples	170
9.11	Conclusion.....	171
	References.....	171
10	Chatbots for Education	173
10.1	What Is Chatbot?.....	173
10.2	Chatbots Also Participate in Education	173
10.3	To What End Are AI Chatbots Being Adopted by the Education Sector?.....	175
10.4	How Do Chatbots Transform the Traditional Education Process?	177
10.5	How Can We Best Put Chatbots to Use for Education and Learning?.....	179
10.6	How Can Chatbots Be Utilized in Higher Education?.....	181
10.7	Best Chatbots for Higher Education	182
10.8	Various Ways in Which AI and Chatbots Influence the Education	183
10.9	Advantages of AI-based Chatbots in Education	184
10.10	Benefits of Using AI Chatbots in the Education Sector.....	185
10.11	How AI Chatbots Are Changing Mobile Learning	187
10.12	How Universities Are Using Education Chatbots to Enhance the System.....	188
10.13	Institutions that Deployed Educational Chatbots.....	190
10.14	How Can Education Apps Benefit from Chatbots?.....	191

10.15	Future of AI Chatbots in the Education Industry	196
10.16	Conclusion	197
	References	197
11	AI-Assisted Remote Proctored Examinations	199
11.1	What Is Remote Proctoring?	199
11.2	Online Proctoring System (OPS): An Overview	200
11.3	What Is AI Proctoring?	202
11.4	How Can AI Improve Remote Proctoring Services?	203
11.5	How AI-Based Remote Proctoring Work?	203
11.6	How AI Prevents Cheating in Remote Proctoring Exams?	204
11.7	AI-Assisted Proctoring Software for Monitoring Online Exams	205
11.8	AI Technologies Used for Remote Proctoring	206
11.9	Challenges and Opportunities	207
11.10	Future of AI-Based Proctoring Systems	208
11.11	Conclusion	210
	References	210
12	Ethics of Artificial Intelligence in Education	213
12.1	Ethics in AI	213
12.2	Ethical Implications of Artificial Intelligence	214
12.3	Ethical Issues of AI in Education	214
12.4	The Ethical Framework for AI in Education	218
12.5	Investigating the Moral Implications of AI for K-12 Classrooms	219
12.6	Artificial Intelligence in Higher Education: Ethical Questions	221
12.7	Elements to Consider and Questions to Ask	222
12.8	Recommendations to Enhance AI Implementation in Education	224
12.9	Conclusion	228
	References	228