

Studies in Big Data 78

Aboul-Ella Hassanien
Nilanjan Dey
Sally Elghamrawy *Editors*

Big Data Analytics and Artificial Intelligence Against COVID-19: Innovation Vision and Approach

 Springer

Aboul-Ella Hassanien · Nilanjan Dey ·
Sally Elghamrawy
Editors

616 478502
012498223
122387316

Big Data Analytics and Artificial Intelligence Against COVID-19: Innovation Vision and Approach



Contents

Forecasting and Visualization

Coronavirus Spreading Forecasts Based on Susceptible-Infectious-Recovered and Linear Regression Model	3
Neha Tyagi, Naresh Dhull, Meenakshi Sharma, Vishal Jain, and Shashank Awasthi	

Virus Graph and COVID-19 Pandemic: A Graph Theory Approach	15
H. R. Bhapkar, Parikshit N. Mahalle, and Prashant S. Dhotre	

Nonparametric Analysis of Tracking Data in the Context of COVID-19 Pandemic	35
D. A. Klyushin	

Visualization and Prediction of Trends of Covid-19 Pandemic During Early Outbreak in India Using DNN and SVR	51
Mahua Nandy Pal, Shuvankar Roy, Supriya Kundu, and Sasmita Subhadarsinee Choudhury	

Diagnosis and Predictions of COVID-19

The Detection of COVID-19 in CT Medical Images: A Deep Learning Approach	73
Nour Eldeen M. Khalifa, Mohamed Hamed N. Taha, Aboul Ella Hassanien, and Sarah Hamed N. Taha	

COVID-19 Data Analysis and Innovative Approach in Prediction of Cases	91
Abhijeet Kushwaha, Pallavi Vijay Chavan, and Vivek Kumar Singh	

Detection of COVID-19 Using Chest Radiographs with Intelligent Deployment Architecture	117
Vedant Bahel and Sofia Pillai	

COVID-19 Diagnostics from the Chest X-Ray Image Using Corner-Based Weber Local Descriptor	131
S. N. Mohammed, A. K. Abdul Hassan, and H. M. Rada	
Why Are Generative Adversarial Networks Vital for Deep Neural Networks? A Case Study on COVID-19 Chest X-Ray Images	147
M. Y. Shams, O. M. Elzeki, Mohamed Abd Elfattah, T. Medhat, and Aboul Ella Hassanien	
Artificial Intelligence (AI) Against COVID-19	
Artificial Intelligence Against COVID-19: A Meta-analysis of Current Research	165
Khalid Raza	
Insights of Artificial Intelligence to Stop Spread of COVID-19	177
Abu Sufian, Dharm Singh Jat, and Anuradha Banerjee	
AI Based Covid19 Analysis-A Pragmatic Approach	191
Prerana Mukherjee and Sarul Malik	
Artificial Intelligence and Psychosocial Support During the COVID-19 Outbreak	209
Poonam Dhaka	
Role of the Accurate Detection of Core Body Temperature in the Early Detection of Coronavirus	227
Enas Selem and Sherine M. Abd El-kader	
The Effect CoronaVirus Pendamic on Education into Electronic Multi-modal Smart Education	245
Doaa Mohey El-Din, Aboul Ella Hassanein, and Ehab E. Hassanien	
Deep Learning Against COVID-19	
An H₂O's Deep Learning-Inspired Model Based on Big Data Analytics for Coronavirus Disease (COVID-19) Diagnosis	263
Sally Elghamrawy	
Coronavirus (COVID-19) Classification Using Deep Features Fusion and Ranking Technique	281
Umut Özkaya, Şaban Öztürk, and Mucahid Barstugan	
Stacking Deep Learning for Early COVID-19 Vision Diagnosis	297
Ahmed A. Hammam, Haytham H. Elmousalami, and Aboul Ella Hassanien	