INDEX

advancements, 7–9 artificial intelligence, 2–3, 6–7, 18, 22 AI see artificial intelligence artificial neural networks, 33, 35, 39 ANN see artificial neural networks attention mechanisms, 4 automated plant, 55, 62

biased data, 6–7 biodiversity, 55, 62 botanical landscape, 55 box-jeans, 22

children, 32–33, 37, 39 chronic illness, 32 classification, 55–56, 59–62 confusion matrix, 37 congestive heart failure, 9 convolutional neural network, 3, 45, 56–57 CNN *see* convolutional neural network crime data, 43–46, 52 crime incidents, 46, 49–50 crime information, 43, 45 crime mapping, 43–45, 52 crime rate, 44–50, 52 dashboard, 25, 28–29,43–45, 49–50, 52 data mining, 43-45 decision tree, 2–3, 10–11, 15– 18, 39, 50–51 DT *see* decision tree demographic, 33, 35, 45 deprivation index, 46, 48 dimensionality reduction, 33, 34, 36, 39 diseases, 1, 9–10, 32–33

edge computing, 1, 6–7 epochs, 26, 60 estimators, 15–17 ethical considerations, 6–7

F1 score, 37–38 feature scaling, 34 feature selection, 10, 39 forecasting, 21–25, 28, 44

genetic algorithm, 10 GA *see* genetic algorithm geographical information systems, 43 GIS *see* geographical information systems grid search, 51

healthcare, 6–7, 18, 33, 55–56 heart disease, 9–12, 14, 16–18, 32–33 high-dimensional data, 33–34, 36, 39 hot spot, 43, 45

inflation rates, 46, 48 interdisciplinary, 6-7

k-fold cross-validation, 51 k-nearest neighbour, 10, 39, 45 KNN *see* k-nearest neighbour

linear kernel, 16 logistic regression, 37–39 LR *see* logistic regression long short-term memory, 22– 25, 27–30 LSTM *see* long short-term memory lower layer super output area, 46–49 LSOA *see* lower layer super output area

machine learning, 1–7, 9–11, 18, 21–23, 30, 33–34, 36–37

ML see machine learning malnutrition, 32-33, 35, 37, 39 mean absolute percentage error, 27-28, 30 MAPE see mean absolute percentage error mean squared error, 25, 27-28, 30, 50-52MSE see mean squared error medical experts, 18 medicinal plants, 55-57, 59-61 MobileNetV2, 56-57, 59-62 morbidity, 9, 18 mortality, 9, 18 multilayer perceptron, 22, 26-30 MLP see multilayer perceptron

Naïve Bayes, 37–39 NB see Naïve Bayes natural language processing, 3, 5 NLP see natural language processing

overfitting, 11, 58, 61

pattern recognition, 2–3 population density, 46–48 population, 10, 32, 46–48 precision, 37–38, 57 prediction, 2–3, 9–11, 13, 16, 21–22, 29, 32, 34, 36–37, 40, 44–45, 50, 52 product demand, 21–22 public awareness, 43

random forest, 10, 14–18, 23, 33, 39, 45, 50–52 RF see random forest recurrent neural network, 3, 22–23, 27–29 RNN see recurrent neural network reinforcement learning, 3–5

spatial patterns, 45 supervised learning, 4–5, 10 support vector machines,10, 12–13, 16–18, 32–33, 37– 39 SVM *see* support vector machines

time series analysis, 22 transfer learning, 6–7, 55–57, 59, 61–62

unemployment rates, 46, 48 unsupervised learning, 5

World Health Organization, 7, 9, 32