

INDEX

- Activities of Daily Life (ADL), 44
- Aibo, 28
- Air pollution, 9
- Android robots, 27
- Anxiety, 2
- Applied Behaviour Analysis (ABA), 11, 17–18
- Apps, 22
- Artificial humans treating autism, 21
 - apps, 22
 - robot-assisted therapies, 22–27
 - wearables, 22
- Artificial Intelligence (AI), 1
- Asperger's Disorder, 2
- Asperger's Syndrome, 4
- Assistive technology (AT), 15
- Attention-deficit hyperactivity disorder, 2
- Augmentative and Alternative Communication (AAC), 18
 - for children with autism, 18–20
- Augmented Reality (AR), 25
- Aurora project, 32
- Autism, 2
 - causes and prognosis of, 9–10
 - disorder, 4
 - history of, 3–5
 - managing, 10–11
 - preliminary assessment and screening of autism, 6–7
 - prevalence of autism, 5–6
 - robots and, 11–13
 - scales for autism assessment, 7–9
 - spectrum of, 3
 - symptoms, 3
 - and technology, 15–16
- Autism and Developmental Disabilities Monitoring Network (ADDMM Network), 5–6
- Autism Diagnostic Interview-Revised scale (ADI-R scale), 8
- Autism Diagnostic Observation Schedule (ADOS-2), 24
- Autism Diagnostic Observation Scheduled–Generic (ADOS-G), 8
- Autism Spectrum Disorder (ASD), 1–2
- Autism Spectrum Screening Questionnaire (ASSQ), 8
- Autistic Disorder, 2
- Autonomy, 44
- B³IA architecture, 23
- Bandit Bubble Blowing Robot, 28
- Behaviour therapy, 11
- Behavioural analysis research, 17
- Behavioural analysts, 9
- 'Big Mac' buttons, 19
- Brain–Computer Interface (BCI), 46
- Centers for Disease Control and Prevention (CDC), 2
- Charlie, 28

- Checklist for Autism in Toddlers (CHAT), 7
- Childhood Autism Rating Scale (CARS), 8
- Childhood Disintegrative Disorder, 2
- Chromosomal abnormalities, 4
- Cognitive Behavioural Therapy (CBT), 16
- CommU robots, 24
- Community, 44
- Computer face processing games, 16

- Data collection, 37
- Depression, 2
- Diagnostic and Statistical Manual of Mental Disorders (DSM), 4
 - DSM-5, 5
- 'Diagnostic substitution'
 - process, 5
- Digital technology, 40, 44–45
- Disabilities, 45
- Drugs, 11
- Dynamic display, 19

- Early Screening of Autistic Traits Questionnaire, 7
- Early Start Denver Model therapy (ESDM therapy), 16
- Education system, 10
- Educational Interventions, 11
- Electroencephalogram (EEG), 12
- Empathy, 44
- Epilepsy, 2
- Erica Foundation, 4
- Evaluation studies, 34

- Fixed display, 19
- Fragile X syndrome, 4

- Google Glass, 22
- Graphical user interfaces (GUIs), 20, 26

- Hierarchical human–robot learning study (hHRL study), 33
- Home-based robotic therapies, effect of, 33–34
- Humanoid robots, 27
- Human–Robot Interaction (HRI), 1, 21

- Identity, 44
- Imitation, robotic therapy for, 26–27
- Infantile autism, 4
- Interdisciplinary research
 - approach, 39
- Intervention strategies, 16
 - applied behaviour analysis, 17–18
- Interventional therapies, 6
- Intrauterine growth restriction, 9

- Jibo robot, 33
- Joint attention, robotic therapy for, 26–27

- KASPAR, 28
- Keepon, 28

- Labo-1, 28
- Least-to-Most order (LTM order), 21
- Licensed psychologists, 10
- Long-term interactions, effects of, 35

- Machine learning (ML), 12
- Machines
 - artificial humans treating autism, 21–27
 - autism and technology, 15–16
 - intervention strategies, 16–18
 - pros and cons of RATs, 29
 - robotic platform effect, 27–28
 - technological assisted interventions and implications, 20–21

- Mascot robots, 27
- Measles-mumps-rubella (MMR), 4
- Mechanical robots, 27
- Mental retardation, 4
- Metabolic disturbances, 4
- Modified Checklist for Autism in Toddlers (M-CHAT), 7
- Multi-Robot Interactive System (MRIS), 26
- Muu, 28
- NAO, 28
- Non-humanoid robots, 27
- Non-verbal speech, robotic interventions for, 24–25
- Nonverbal communication, 20
- Occupational therapy (OT), 11
- Pakistan Autism Society, 6
- Personal Computers (PCs), 20
- Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS), 2
- Pervasive Developmental Disorders (PDD), 2
- Pharmacological therapies, 6
- Picture Exchange Communication System (PECS), 19
- PKU, 4
- Pleo, 28
- Policy guidance by UNICEF, 41–42
- Policy recommendations, 39
- Positive reinforcement concept, 17
- Preliminary assessment of autism, 6–7
- Responsible AI, 43
risk *vs.* opportunities, 43–44
- Rett's Disorder, 2
- Roball, 28
- RoboParrot, 25
- Robot autonomy, 36
- Robot-Assisted Autism Therapy (RAAT), 23–24
robots in, 32–34
- Robot-Assisted Therapies (RAT), 1, 15, 22, 31
concerns, 35–37
effects of long-and short-term interactions, 35
evaluation studies, 34
future direction, 37–38
pros and cons of, 29
robotic interventions for verbal and non-verbal speech, 24–25
robotic therapy for joint attention and imitation, 26–27
robots in RAATs, 32–34
virtual reality and autism, 25–26
- Robota, 28
- Robotic embodiments, 27
- Robotic platform effect, 27–28
- Robotic therapies, 18
- Robots, 15
autism and, 11–13
in RAATs, 32–34
- Romibo, 25
- Screening of autism, 6–7
- Short-term interactions, effects of, 35
- Social Communication Questionnaire (SCQ), 8
- Social Responsiveness Scale (SRS), 8
- Social robot, 32
- Socially Assistive Robots (SARs), 11, 16, 39
- Special education teachers, 10
- Spectrum of autism, 3
- Speech Generating Devices (SGDs), 19
- Speech pathologists, 10

- Sustainable Development Goals (SDGs), 39–40
 - for children with disabilities, 44–45
- Technological assisted interventions and implications, 20–21
- Theatre-in-education initiatives (TIE initiatives), 32
- Thimerosal, 5
- Touch, 24
- Traditional teaching methods, 25
- Transparency, 44
- Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH), 17
- Tuberous sclerosis, 4
- Typically developed children (TD children), 24
- UN Agenda 2030, 40
- Underemployment, 45
- Unemployment, 45
- UNICEF, policy guidance by, 41–42
- Value, 44
- Verbal speech, robotic interventions for, 24–25
- Virtual reality (VR), 25
 - and autism, 25–26
- Visual Scene Display (VSD), 19
- Wearables, 22
- Wizard of Oz method (WOZ method), 23
- World Health Organization (WHO), 2