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Journal Articles on Technology for Cognitive Disabilities [1]

Transforming Perceptions: Exploring the Multifaceted Potential of Generative AI for People with Cognitive Disabilities

Published in *JMIR Neurotechnology* on January 15, 2025
By Dorit Hadar Souval, Yuval Haber, Amir Tal, Tomer Simon, Tal Elyoseph, Zohar Elyoseph

This article explores how generative AI (GenAI) can impact individuals with cognitive disabilities by serving as both a "social mirror" and a "cognitive copilot." As a social mirror, GenAI reflects societal biases, potentially influencing perceptions of cognitive disabilities. As a cognitive copilot, it offers personalized support in daily activities, social interactions, and environmental navigation. The study highlights both the opportunities and challenges of GenAI in this space, emphasizing the need for ethical considerations, inclusive design, and further research to ensure AI technologies empower rather than marginalize individuals with cognitive disabilities.

READ ARTICLE [2]
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Let’s CHAT About Artificial Intelligence for Students with Disabilities: A Systematic Literature Review and Meta-Analysis

Published in *Review of Educational Research* on December 6, 2024
By Ling Zhang, Richard Allen Carter, Jr., Yuting Liu, and Peng Peng

This article explores the impact of AI-based interventions on the educational outcomes of students with disabilities. Analyzing 29 (quasi-)experimental studies, the research evaluates how AI technologies, including chatbots, adaptive learning systems, and assistive tools, enhance learning experiences, accessibility, and engagement for students with diverse needs. The study highlights both the benefits and challenges of integrating AI in special education, emphasizing the importance of ethical considerations, personalized learning approaches, and further research to optimize AI-driven support for students with disabilities.

READ ARTICLE [3]
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A Comprehensive Review of Virtual Reality Technology for Cognitive Rehabilitation in Patients with Neurological Conditions

Published in *Applied Sciences* on July 19, 2024
By Wei Quan, Shikai Liu, Meng Cao, Jiale Zhao

This article explores the use of virtual reality (VR) in cognitive rehabilitation for neurological

conditions such as stroke, Parkinson’s disease, autism, and Alzheimer’s. It discusses how VR can enhance memory, attention, motor skills, and social interactions. The study introduces a framework categorizing VR systems into immersive, semi-immersive, and non-immersive settings to better suit different patients' needs. For instance, individuals with autism may benefit from multiplayer VR for social skills, while those with traumatic brain injuries might require highly immersive environments for concentration and motor function rehabilitation. The article emphasizes the potential of VR in personalized therapy and rehabilitation programs.

READ ARTICLE [4]
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Introduction to Large Language Models (LLMs) for dementia care and research

Published in *Frontiers in Dementia* on May 13, 2024
By Matthias S Treder, Sojin Lee, Kamen A Tsvetanov

This article explores the potential of LLMs in supporting dementia care, from early diagnosis to assisting patients, caregivers, and clinicians. It discusses how LLMs can improve communication, generate personalized care strategies, and enhance cognitive engagement for individuals with dementia. The study also addresses ethical concerns, including data privacy, bias, and the need for careful implementation to ensure accessibility and reliability. By analyzing current applications and future possibilities, the article highlights the transformative role LLMs could play in advancing dementia care and research.

READ ARTICLE [5]
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Cognitive Support Technology for People with Intellectual Disabilities: Factors for Successful Implementation

Published in *Social Sciences* on October 24, 2023
By Michiel P. de Looze, Ellen Wilschut, Reinier Könemann, Kim Kranenborg, Harry De Boer

This article explores key factors that influence the effective adoption of cognitive support technologies for individuals with intellectual disabilities. It emphasizes the importance of technology acceptance by users and caregivers, customization to individual needs, and the necessity of comprehensive training and support. Successful implementation also depends on integrating the technology into daily life, considering cost and accessibility, and involving users in the design process. Continuous evaluation and adjustment of these technologies are crucial to ensure their relevance and effectiveness in enhancing the quality of life for users.

READ ARTICLE [6]
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Computer-assisted cognitive rehabilitation in neurological patients: state-of-art and future perspectives

Published in *Frontiers in Neurology* on September 28, 2023
By Maria Grazia Maggio, Daniela De Bartolo, Rocco Salvatore Calabrò, Irene Ciancarelli, Antonio Cerasa, Paolo Tonin, Fulvia Di Iulio, Stefano Paolucci, Gabriella Antonucci, Giovanni Morone, Marco Iosa

This article reviews the current advancements in computer-assisted cognitive rehabilitation (CACR) technologies, highlighting their effectiveness in improving cognitive functions for neurological patients. It discusses various CACR tools that target cognitive domains like memory, attention, and executive functions, and emphasizes their benefits in both clinical and home settings. The article also explores future directions, focusing on the integration of advanced technologies like artificial intelligence and virtual reality, as well as the need for personalized and adaptable rehabilitation plans. Challenges such as technological barriers and cost are noted, with a call for continued innovation to enhance the efficacy and accessibility of CACR tools.

READ ARTICLE [7]
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Technologies Designed to Assist Individuals with Cognitive Impairments

Published in *Sustainability* on September 8, 2023
By Patrícia Szabó, Jinat Ara, Bence Halmosi, Cecilia Sik-Lanyi, Tibor Guzsvinecz

This article explores the significant role of modern technology in enhancing the quality of life for individuals with cognitive disabilities. It reviews various IT-based solutions designed to address challenges such as memory problems, dementia, autism, and post-stroke cognitive issues. These include applications using Augmented Reality (AR), Virtual Reality (VR), and Artificial Intelligence (AI), which support therapy and skill development, particularly in social interactions and memory retention. It evaluates the effectiveness, strengths, and limitations of these technologies through a review of 23 studies, highlighting the promise they hold while pointing out challenges related to cost, accessibility, and transparency. Although technologies like VR and mobile apps have been shown to improve cognitive function and therapy engagement, the paper calls for further research to make these tools more affordable and adaptable to specific user needs.

READ ARTICLE [8]
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Brain–computer interface: trend, challenges, and threats

Published in *Brain Informatics* on August 4, 2023
By Baraka Maiseli, Abdi T. Abdalla, Libe V. Massawe, Mercy Mbise, Khadija Mkocha, Nassor Ally Nassor, Moses Ismail, James Michael, Samwel Kimambo

This article provides a comprehensive overview of the current trends, challenges, and potential threats associated with brain-computer interfaces (BCIs). It highlights the rapid advancements in BCI technology, which enable direct communication between the brain and external devices, offering promising applications in areas like rehabilitation, communication,

and control of assistive devices. However, the article also addresses significant challenges, including technical issues related to signal accuracy and reliability, ethical concerns about privacy and security, and the need for effective integration into clinical and everyday settings. The discussion underscores the importance of addressing these challenges to fully realize the potential of BCIs while mitigating associated risks.

READ ARTICLE [9]
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Technology Within Services for Persons with Disabilities

Published in *Advances in Neurodevelopmental Disorders* on November 10, 2020
By Giulio E. Lancioni

This article examines the integration of technology into services designed to support individuals with disabilities. It highlights how various technological innovations, such as assistive devices and digital tools, enhance the accessibility and quality of services provided. The article discusses the benefits of these technologies in improving communication, mobility, and daily living skills, while also addressing the challenges related to implementation, such as cost, training, and the need for customization to individual needs. It emphasizes the potential of technology to significantly improve the independence and quality of life for people with disabilities, advocating for continued development and integration of these solutions into service delivery.

READ ARTICLE [10]
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Applied Cognitive Technologies to Support the Autonomy of People with Intellectual and Developmental Disabilities

Published in *Advances in Neurodevelopmental Disorders* on August 10, 2020
By Michael L. Wehmeyer, Daniel K. Davies, Steven E. Stock, Shea Tanis

This article explores how cognitive technologies are being used to enhance the independence and quality of life for individuals with intellectual and developmental disabilities. It reviews various applications of these technologies, such as assistive software, cognitive training tools, and adaptive devices, which support daily living activities, improve decision-making, and foster greater self-reliance. The article highlights successful case studies and discusses the potential benefits of these technologies in promoting autonomy. It also addresses challenges such as ensuring accessibility, customization, and user engagement to maximize the effectiveness of cognitive technologies for this population.

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