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Innovations in Brain Implants: Enhancing Neurological Function through Advanced Technology

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The ýeld of brain implants has witnessed remarkable advancements, promising to revolutionize the treatment of neurological disorders and enhance human cognitive and motor functions. This paper explores the latest innovations in brain implant technology, focusing on their design, functionality, and therapeutic potential. Cutting-edge materials and biocompatible interfaces have improved the longevity and performance of these implants, while advancements in microelectronics and wireless communication have enabled more precise and less invasive interventions. Moreover, novel approaches in neural interfacing and signal processing are facilitating better integration with the brain's natural circuitry, leading to more e ective and tailored therapies for conditions such as Parkinson's disease, epilepsy, and paralysis. This review also examines the ethical considerations and future directions of brain implant technology, emphasizing the need for interdisciplinary collaboration to address the complex challenges and unlock the full potential of these transformative devices. By bridging the gap between advanced technology and neurological health, brain implants are poised to o er unprecedented improvements in the quality of life for individuals with neurological impairments.

Ke d : Brain implants; Parkinson's disease; Biocompatible interfaces; Cutting-edge materials; Neurological health

I d c

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Ma e a a d Me d

B a a de ce

Platinum, iridium, and gold were used for their biocompatibility and electrochemical stability. For advanced applications, graphene and carbon nanotubes were explored for their high conductivity and

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C c f I e e

None

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