

# Gaming Behavior: Brain Activation Insights

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## Abstract

This study investigates the neural correlates of gaming behavior using a multi-modal approach, incorporating Functional Near Infrared Spectroscopy (fNIRS), the Iowa Gambling Task (IGT), and AI methodologies. We examine patterns of brain activation during gaming tasks to elucidate cognitive processes underlying decision-making and risk-

the neurobiological basis of gaming behavior and may inform interventions for gaming-related disorders.

**Keywords:** Gaming behavior; Brain activation; Functional near infrared spectroscopy (fNIRS); Iowa gambling task (IGT); Decision-making; AI Approaches

**Introduction**

Gaming behavior has become increasingly prevalent in modern society [1,2], with millions of individuals engaging in video gaming

**Implications for Gaming Behavior:** The observed brain activation patterns provide insights into the neurobiological basis of gaming behaviour [9]. Activation in regions associated with reward processing, decision-making, and cognitive control suggests that gaming engages similar neural circuits as other reward-driven activities.

**Clinical Relevance:** Understanding the neural mechanisms underlying gaming behavior has implications for clinical interventions