


Chapter 7

Interface Technology: Increasing the Effectiveness of Medical Financial Decision–Making


Prithu Sarkar

 <https://orcid.org/0009-0004-3148-4025>
Amity School of Communication, India

E. Gnanaprasuna

*Department of Management Studies,
Madanapalle Institute of Technology
and Science, India*

Srinivasa Rao Dokku Dokku

 <https://orcid.org/0000-0002-8082-9569>
*PVP Siddhartha Institute of Technology,
India*


Ashok Kumar Sahoo

*Kalasalangam Academy of Research
and Education, India*


M. Angulakshmi

Vellore Institute of Technology, India

Binay Kumar Pandey

 <https://orcid.org/0000-0002-4041-1213>
*Govind Ballabh Pant University of
Agriculture and Technology, India*

A. Shaji George

 <https://orcid.org/0000-0002-8677-3682>
Almarai Company, Saudi Arabia

ABSTRACT

The integration of Brain-Computer Interface (BCI) technology into financial decision-making processes is a transformative approach that improves the precision and efficacy of real-time financial strategies. BCI technology is capable of facilitating enhanced and expedited assessments by directly interpreting brain impulses and providing substantial insights into cognitive patterns. This optimisation is achieved by monitoring mental and emotional processes in real time, which leads to a more comprehensive comprehension of financial preferences, decision fatigue, and risk tolerance. This article investigates the potential applications, advantages, and ethical

DOI: 10.4018/979-8-3373-5122-3.ch007

implications of brain-computer interface (BCI) technology in financial decision-making, with a particular emphasis on its revolutionary influence on major financial institutions and ordinary investors.

INTRODUCTION

It is becoming widely understood that the application of Brain-Computer Interface (BCI) technology in the process of making financial decisions is a transformational instrument. Brain-computer interfaces (BCIs) have the potential to bring about a revolution in the methodologies that individuals and businesses use to manage their finances (Ahmad, A. Y. B., et al., 2024a). Critical cognitive processes in financial situations include the perception of risk, the tiredness associated with decision making, and affective responses. Interfaces between the brain and computers are able to recognise and analyse these signals in order to provide real-time insights (Devasenapathy, D. et al., 2023). When it comes to making traditional financial decisions, cognitive biases, emotions, and mental weariness are typically the factors that delay the process. In order to overcome these obstacles, the technology of brain-computer interfaces (BCI) integrates an additional layer of neural data. This helps decision-makers recognise and properly manage their own biases. This mental input has the potential to increase overall financial performance, limit the occurrence of impulsive or foolish actions, and optimise processes (Babu, M., et al., 2020). Moreover, it has the potential to maximise efficiency (Pandey, B. K. et al., 2024b).

In addition, by evaluating the cognitive processes of the user, BCIs make it possible to develop more individualised financial plans. By way of illustration, adaptive financial advice can be encouraged by real-time monitoring of tension or confidence levels in order to assist individuals or institutional investors in making decisions that are more informed. When it comes to making snap decisions in high-risk circumstances (Saxena, A. et al., 2024), such as stock trading or investment management, the insights that are supplied by BCI could provide a significant advantage. The implementation of BCI technology into the process of making financial decisions, on the other hand, is riddled with complex problems. Because of the sensitive nature of brain data, it is necessary to address ethical concerns such as the protection of personal information and the encryption of data (George, A. S., & Pandey, D., 2024). Because of their costly cost and the intricacy of their technology, brain-computer interfaces (BCIs) may not be widely used. Despite these challenges, it is projected that brain-computer interfaces (BCIs) will become an indispensable instrument for enhancing the process of making financial decisions (Ahmad, A. Y. B., 2024d). This will be a result of ongoing breakthroughs in the fields of neuroscience and

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/interface-technology/383313

Related Content

Electronic Payment Adoption in the Banking Sector of Low-Income Countries

Teshome Alemu, Tridib Bandyopadhyay and Solomon Negash (2018). *Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications* (pp. 1042-1063).

www.irma-international.org/chapter/electronic-payment-adoption-in-the-banking-sector-of-low-income-countries/196717

Model-Based Interview Method Selection Approach in Participatory Design

Arsineh Boodaghian Asland Michel Gokan Khan (2020). *Interactivity and the Future of the Human-Computer Interface* (pp. 206-223).

www.irma-international.org/chapter/model-based-interview-method-selection-approach-in-participatory-design/250754

Design and Evaluation of Mobile Learning from the Perspective of Cognitive Load Management

Wenhao David Huang and Jeanette Andrade (2016). *Human-Computer Interaction: Concepts, Methodologies, Tools, and Applications* (pp. 350-365).

www.irma-international.org/chapter/design-and-evaluation-of-mobile-learning-from-the-perspective-of-cognitive-load-management/139043

Machine Learning and Sentiments Analysis: Analyzing Customer Reviews

Pradeep kumar Singh, Showmik Setta, Akhilesh Kumar Singhand Amit Pratap Singh (2024). *Human-Centered Approaches in Industry 5.0: Human-Machine Interaction, Virtual Reality Training, and Customer Sentiment Analysis* (pp. 248-264).

www.irma-international.org/chapter/machine-learning-and-sentiments-analysis/337105

Immersing People in Scientific Knowledge and Technological Innovation Through Disney's Use of Installation Art

Jonathan Lillie and Michelle Jones-Lillie (2019). *Advanced Methodologies and Technologies in Artificial Intelligence, Computer Simulation, and Human-Computer Interaction* (pp. 826-839).

www.irma-international.org/chapter/immersing-people-in-scientific-knowledge-and-technological-innovation-through-disneys-use-of-installation-art/213179