Quantum Computing Use Cases

Application Ad Analysis for Advanced Ad Delivery

SMBC



New Energy and Industrial Technology Development Organization (NEDO)

SMBC: Application Ad Analysis for Advanced Ad Delivery [2025/10]

Concept

Industry	Finance
Process	bank
Method	AI
Category	–

Background

- The mainstream of quantum computation is hybrid use with conventional computation, and it has strength in combinatorial optimization, and its application is advancing in marketing and finance.
- In the advertisement distribution through smartphone apps, there is a lot of room to improve targeting accuracy through advanced analysis, since a variety of high-dimensional features such as customer attributes and behavior logs are linked.

Issues and motivation to be solved

- The objective is to apply an approach such as feature quantity selection utilizing quantum computers to the advertisement distribution area and compare it with the conventional machine learning only method and confirm the effect.
- We verified the effectiveness of quantum AI in the financial and advertising domains by demonstrating greater accuracy and explainability than conventional machine learning-only methods. Verify reproducibility and versatility for future category expansion

Problem setting as a quantum computer

- Demonstration using a combination of quantum AI technology and conventional machine learning models for analysis and recommendation of advertisement delivery in SMBC's smartphone apps
- Verification of the effectiveness of quantum AI technology that combines quantum computer and machine learning, such as feature quantity selection using analysis method of quantum computer

Expected business benefits

- Gradually expand target data and advertising categories to verify reproducibility and versatility
- Application of Advanced Quantum AI Algorithms to Financial and Advertising Fields
- Creating new value through practical solutions that combine quantum computing and AI

Reference: Sumitomo Mitsui Banking Corporation: "Demonstration of Application Advertising Analysis Using Quantum Computers by Sumitomo Mitsui Banking Corporation, SMBC Digital Marketing Corporation, and Quanmatic Corporation" (https://www.smbc.co.jp/news/pdf/j20251031_01.pdf)

More use cases are available on our website. We invite you to explore them.
https://www.quantum-computing-use-cases.nedo.go.jp/english/

More Use Cases

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This collection of use cases was obtained as a result of the work commissioned by the New Energy and Industrial Technology Development Organization (NEDO) "Cyber-Physical Development Business of Quantum/Classical Hybrid Technology/Study of Use Case of Quantum Technology" and the “Post-5G Information and Communications System Infrastructure Reinforcement R & D Project (Quantum Industrialization)/Comprehensive Study for Promoting the Industrialization of Quantum Computers”.