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DELAWARE CHARITABLE NONSTOCK CORPORATION

# NEWSLETTER



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## What's the impact of AI & ML Integration?

We're thrilled to have attended the incredible and unforgettable Stripe Session 2024. We have gained valuable insights into online e-commerce and business payment development, particularly with the integration of AI and ML. These learnings will significantly enhance our basic research in these areas.

### ● Incredible Impact of ML

Machine learning (ML) integration has been a transformative force across various scientific disciplines. From a basic research perspective, the impact of ML can be observed in its ability to enhance data analysis, improve predictive modeling, and uncover new patterns and relationships in complex datasets.

MATRIXELLENT INC. examines the fundamental ways in which ML integration influences basic research, highlighting its contributions to methodological advancements, theoretical development, and the acceleration of discovery processes.

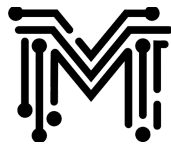
MATRIXELLENT INC. is a Delaware charitable nonstock corporation that is primarily engaged in basic research. Basic research is general research to gain more comprehensive knowledge or understanding of the subject under study, without specific applications in mind. Basic research is also research that advances scientific knowledge, but does not have specific immediate commercial objectives although it may be in fields of present or potential commercial interest. It may include research and investigation in the sciences, social sciences, or humanities. (8 CFR 214.2(h)(19)(iii)(C)).

Primary Research Objectives:

- Basic Research/Fundamental Research
- Advance Scientific Knowledge
- Gain Comprehensive Knowledge and Understanding

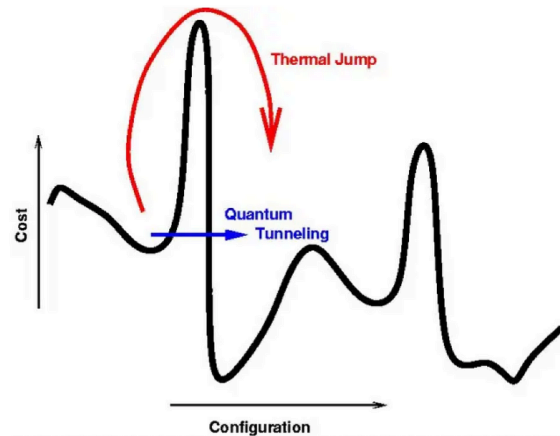
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## Basic Research/ Fundamental Research

The quantum algorithms researched by MATRIXELLENT INC., such as QAOA and Quantum Annealing, hold promise beyond logistics and transportation. Quantum Annealing is a powerful quantum algorithm applicable to solving VRPs by leveraging quantum tunneling to search for the global minimum of a cost function. Our exploration of quantum algorithms for VRP addresses cutting-edge technologies without potential commercial interest, aligning with our commitment to better learning about advanced scientific knowledge and methodologies in logistics and transportation optimization.



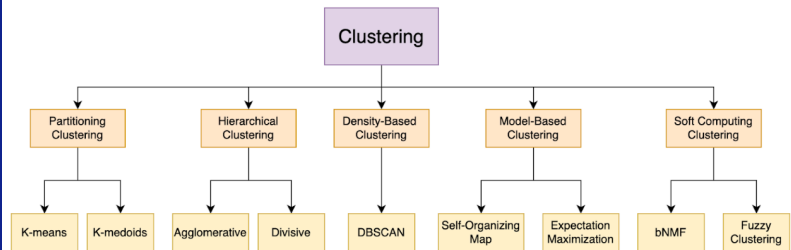
WORK PRODUCT BY HAODONG HU (INDUSTRIAL ENGINEERING VOLUNTEER) AT MATRIXELLENT INC.

### The Procedure of QA (Quantum Annealing)



### Volunteer Profile

Volunteers are required to work at least 20 hours per week and primarily engaged in basic research under the supervision of MATRIXELLENT INC. Volunteers conduct basic research / fundamental research on exploring a wide range of existing technical functionalities to gain a comprehensive understanding and knowledge of computer science implementation algorithms, rather than focusing on specific application.



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### Comprehensive Understanding : Clustering Types

MATRIXELLENT INC. explores and compares various clustering types in our delivery system optimization research. Clustering techniques are pivotal for grouping similar data points, aiding in the identification of patterns and anomalies crucial for informed decision-making. Types such as K-means clustering partition data into cohesive groups based on proximity, ideal for segmenting delivery routes by geographic location or customer preferences. Another method, hierarchical clustering, organizes data into a tree-like structure, useful for refining predictive models by capturing nuanced relationships between variables.