

Problem 3 Optimize My Chaos

Everyday decisions and optimization

Find a creative everyday problem and translate it into a quantum optimization challenge.

The theme

Choose a real or relatable decision-making problem involving limited resources, competing objectives, or constraints. Model it as a small combinatorial optimization problem and investigate a quantum approach such as QAOA. Explain what is being optimized, why the constraints matter, and how to interpret the output.

Ideas to explore

- How would you allocate limited study time across competing priorities?
- Can a campus planning or resource-allocation problem be represented with binary decisions?

Prototype requirements

Present a clear objective and constraints, a working Qiskit-based optimization component, and an application that makes its recommendation understandable.

Judging criteria

- Problem formulation and constraints: 30 points
- Quantum optimization understanding: 25 points
- Creativity and relevance of the chosen problem: 20 points
- Validity of results and evaluation: 15 points
- Usability and presentation: 10 points