

Assignment1:abstract and introduction

- A human-recognizable sign usually indicates that there is a long time due to which multiple steps are required Biological processes so we use nanopore technology.
- The problem is Hamiltonian path ,The solution to this problem involves finding a route among several nodes on a graph, such that each node is visited exactly once, generally known as a traveling salesman problem.
- Adleman's proposed methodology addresses this complexity by exploiting the massive parallelism of DNA self-assembly, resulting in the generation of a DNA library encoding all potential routes through the graph.
- Although this Adleman–Lipton model has been established in molecular computing owing to its massive parallelism and low energy consumption.
- The conventional decoding approach is time-consuming since it requires multiple steps of biological operation, including repetitive magnetic bead experiments and graduated PCR.
- A single strand DNA can pass through the nanopore, but a double stranded DNA cannot pass through it owing to the size mismatch.
- Based on these nanopore decoding technologies, we here attempt to decode a complex mathematical DNA computation with parallel self-assembly, including the analysis of the unzipping time by bootstrapping.
- In this system, input DNAs were injected into a droplet, where the logic operation was performed, and the result was encoded in DNA as a structural change. The output molecules were translocated to another droplet through a nanopore, which was monitored electrically, and decoded.
- Nanopore technology is a promising method for the rapid and label-free detection of target molecules and a data analysis method combining artificial intelligence has

recently
enhanced the research field.