Comparing the Effectiveness of Utilizing a Genetic Algorithm (GA) and Ant Colony Optimization (ACO) in Solving the Knapsack Problem

<https://dl.acm.org/doi/pdf/10.1145/1068009.1068111> [pdf] original website here: <https://dl.acm.org/doi/abs/10.1145/1068009.1068111?casa_token=EXjop4ZbkmIAAAAA:tsypoGC-kPbuNJKQiztRC8il-XmWOKr-EhNqPTi99qFVgElb7bfc36BZD7F-MDnk_2L03v4_pw_0>

<https://dl.acm.org/doi/pdf/10.1145/326619.326694>

<https://www.researchgate.net/profile/Saber-Doustdargholi/publication/228939007_A_Hybrid_Genetic_Algorithm_for_the_Multidimensional_Knapsack_Problem/links/0c96053c91b40a8429000000/A-Hybrid-Genetic-Algorithm-for-the-Multidimensional-Knapsack-Problem.pdf>

The Knapsack problem is a… the goal is to…

Use the A1 loader and summarizer and tweak

1. Develop a GA to solve the Knapsack problem
2. Develop ACO to solve the Knapsack problem
3. Measure Number of Optima
4. Measure Time
5. Present Results
6. Statistics
7. Conclusion

=== general resources

<https://www.youtube.com/watch?v=MacVqujSXWE>

<https://arpitbhayani.me/blogs/genetic-knapsack#:~:text=For%20our%20knapsack%20example%2C%20we,the%20next%20steps%20of%20evolution>.

<https://medium.com/koderunners/genetic-algorithm-part-3-knapsack-problem-b59035ddd1d6>

<https://www.dataminingapps.com/2017/03/solving-the-knapsack-problem-with-a-simple-genetic-algorithm/>

<https://plainenglish.io/blog/genetic-algorithm-in-python-101-da1687d3339b>

<https://towardsdatascience.com/genetic-algorithm-in-r-the-knapsack-problem-3edc5b07d4a7>

=== other papers

<https://www.researchgate.net/publication/301409726_Solving_the_0-1_Knapsack_problem_using_Genetic_Algorithm_and_Rough_Set_Theory>

<https://www.micsymposium.org/mics_2004/Hristake.pdf>