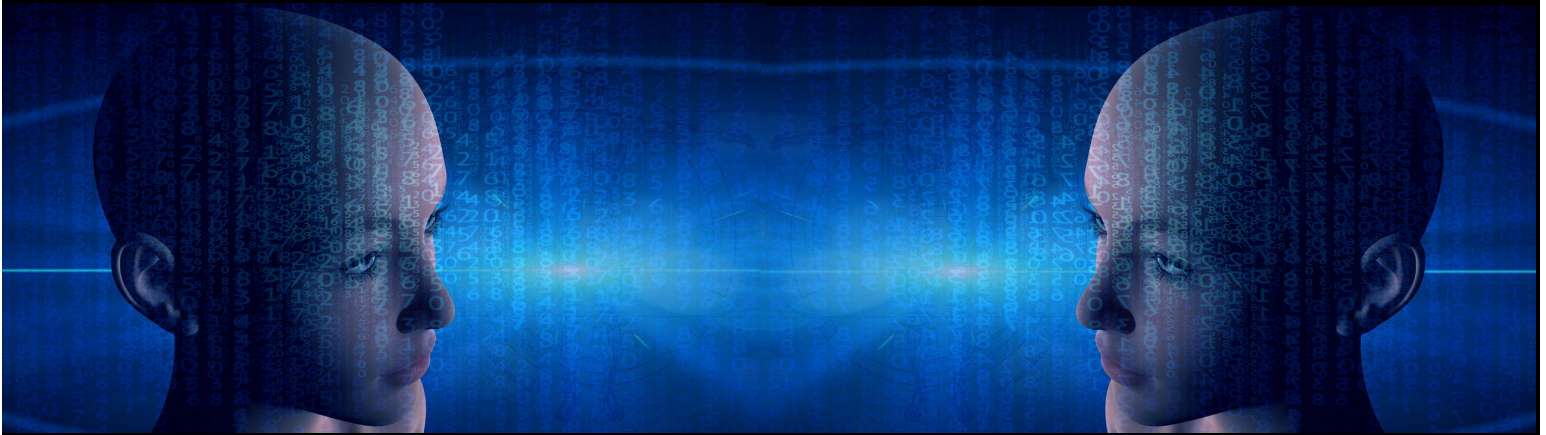




OPTIMIZATION WORLD RECORD FOR CI OWNERS

CI owners set a **new world-record in mathematical optimization**. The target of the optimization was a data set of the 47 most difficult instances of the so-called SMPTSP problem. Top scientists have been trying to solve and find superior solutions for the instances.



The problem was published in 2001. Earlier this year (2020), a Belgian research team published a heuristic method, which was able to find the optimal solutions to 42 instances. The earlier record of 40 solutions was published in 2014. The CI PEASTP algorithm was able to find the optimal solutions to 44 instances.

The results were reached as a by-product when solving a much more complicated real-world optimization problem. In this practical problem the workers visit the clients to carry out tasks with specific time windows. The workers have specific skill sets, transportation types and availability intervals. Examples of such work include cleaning, home care, guarding, manufacturing, installation services, waste management and delivery of goods. SMPTSP is a scientific special case of these practical problems – even thousands of tasks need to be assigned to hundreds of workers in such a way that minimizes the number of workers to be used.

The research results have been submitted to the IEEE Access journal for possible publication. The preprint of the research article is available here: www.computationalintelligence.fi/Preprint.pdf

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