# Tech Review

## Key Information

### Title

Optimal Placement of Cameras in Floorplans to Satisfy Task Requirements and Cost Constraints

### Citation

(Sclaroff, 2004)

## Summary

This paper initially outlines other solutions to the optimal camera placement problem, listing them as incorrect due to the usage of unrealistic parameters. It then procedes to list appropriate parameters and their approximate range, such as Field of View ranging between 50 and 360 degrees.

The paper also attempts to find a solution to the optimal placement problem using an evolutionary algorithm over a binary search space (Each variable has been converted into True/False problem).

## Critical Evaluation

The paper appears to have been thoroughly researched with sources being correctly listed as unrealistic. Real-world parameters and parameter ranges are valid for the current state of technology, both according to paper’s sources as well as independent sources such as (Instrom Security Consultants , 2020).

Regarding the paper’s solution, it is not possible to determine its effectiveness without implementing it. The underlying foundation appears to be solid, as the problem consists of discrete values only. Search Space has been simplified to only consider spaces giving maximum Field of View. As such, the problem becomes more akin to the N-Queens Problem, making it significantly easier to solve (As there is significantly more research done on the N-Queens Problem over Optimal Camera Placement Problem). The algorithm shown is performing well given vastly inferior hardware compared to modern one (Dual Athlon 1 GHz and 1 GB of RAM memory).

A reasonable solution is achieved in a short period, which is surprising given a large search area (56 camera points). Using a naïve approach, a complexity of that specific problem would be 256 As such the solution to this paper needs to be tested as to determine whether results of the demonstrated algorithm can be repeated in a different environment.

## Conclusion

In conclusion, the paper can be freely referenced when it comes to real world parameters regarding both the camera and the environment.

The solution to the problem however needs to be checked as to determine whether it is viable for the problem. A large drawback of the code is that no code has been given meaning that even if implemented correctly, the solution might have different performance/results as the implementation won’t be the same.

# Bibliography

Sclaroff, U. M. E. a. S., 2004. Optimal placement of cameras in floorplans to satisfy task requirements and cost constraints. In: *In Proc. of OMNIVIS Workshop.* s.l.:s.n., pp. 1-12.