# Article information:

(PDF) Bidirectional Relation between CMA Evolution Strategies and Natural Evolution Strategies  
<https://www.researchgate.net/publication/220702138_Bidirectional_Relation_between_CMA_Evolution_Strategies_and_Natural_Evolution_Strategies>

# Article summary:

1. This paper investigates the relation between the covariance matrix adaptation evolution strategy and the natural evolution strategy.

2. The paper derives the explicit form of the natural gradient of the expected fitness and transforms it into forms corresponding to the mean vector and covariance matrix of the mutation distribution.

3. It is shown that the natural evolution strategy can be viewed as a variant of covariance matrix adaptation evolution strategies, and vice versa.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article provides an in-depth analysis of the relationship between two different evolutionary strategies, namely CMA Evolution Strategies (CMA-ES) and Natural Evolution Strategies (NES). The authors provide a detailed explanation of how these two strategies work, as well as their similarities and differences. They also derive an explicit form for the natural gradient of expected fitness, which allows them to compare these algorithms more effectively.

The article is written in a clear and concise manner, making it easy to understand for readers with some knowledge on evolutionary strategies. The authors provide sufficient evidence to support their claims, such as mathematical equations and diagrams that illustrate their points clearly. Furthermore, they present both sides equally by providing examples from both CMA-ES and NES to demonstrate their similarities and differences.

In conclusion, this article is reliable and trustworthy due to its clear explanations, evidence provided to support its claims, balanced presentation of both sides, as well as its comprehensive coverage on evolutionary strategies.

# Topics for further research:

* Evolutionary Algorithms
* CMA-ES Optimization
* Natural Gradient Descent
* Evolution Strategies Comparison
* Evolutionary Strategies Performance
* Evolutionary Strategies Applications

# Report location:

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