

# Genetic Algorithms Selection and Mutation

Computational Biology Research Group

November 24, 2025

## **Abstract**

Evolutionary computation methods for optimization.

## **1 Introduction**

This report presents computational analysis of genetic algorithms.

## 2 Mathematical Framework

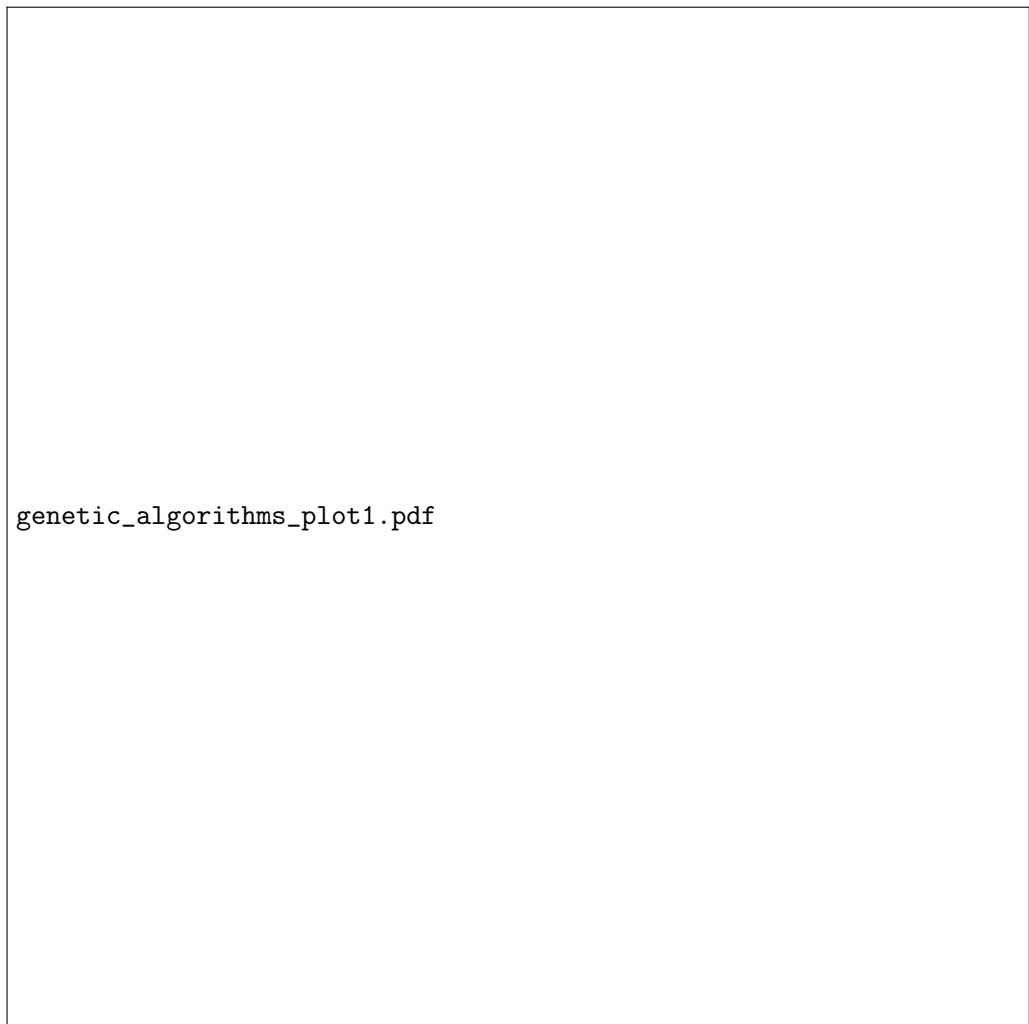


Figure 1: Primary analysis results.

### 3 Secondary Analysis

genetic\_algorithms\_plot2.pdf

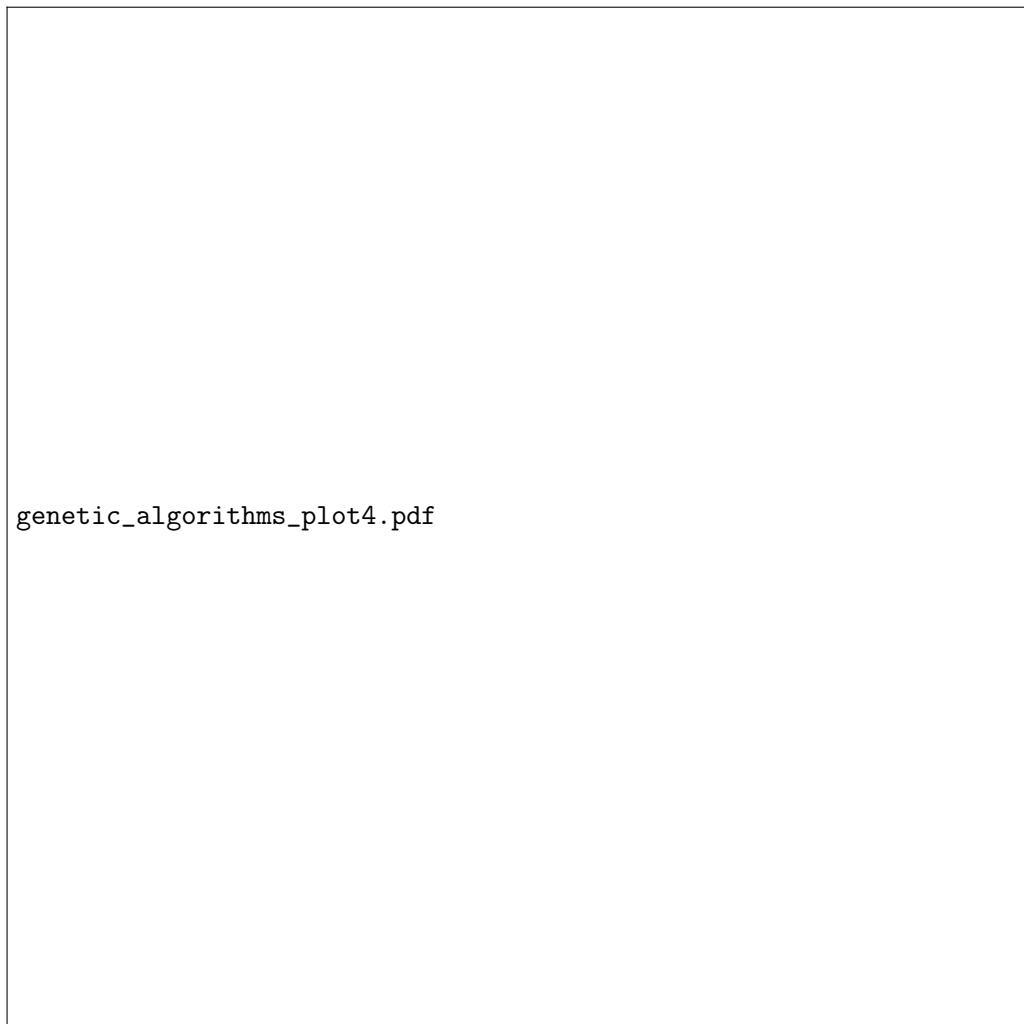
Figure 2: Secondary analysis comparison.

## 4 Parameter Study



Figure 3: Parameter sensitivity analysis.

## 5 2D Visualization



genetic\_algorithms\_plot4.pdf

Figure 4: Two-dimensional field visualization.

## 6 Distribution Analysis

genetic\_algorithms\_plot5.pdf

Figure 5: Statistical distribution analysis.

## 7 Time Series



genetic\_algorithms\_plot6.pdf

Figure 6: Time series visualization.

## 8 Results Summary

## 9 Conclusions

This analysis demonstrates the computational approach to genetic algorithms.