

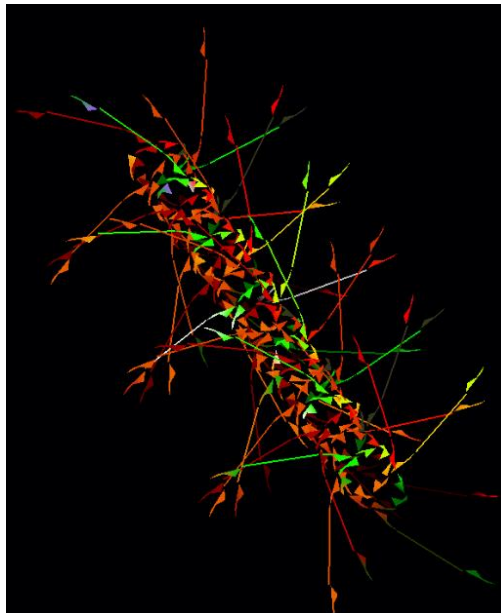
## Artificial Life Simulator using Genetic Algorithms

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### ABSTRACT

This paper introduces the idea of producing a user friendly platform, from which to set into motion the evolution of a plant. The plants are represented and generated using the mathematical formalism of Lindenmayer Systems, with the genome being embodied by the production rules and variables of the L-System. Evolution is then simulated using Genetic Algorithms, which are driven by a user defined fitness function, in the form of an equation. This is all packaged in an intuitive Graphical User Interface (GUI), allowing the user control over the different genetic operators of the genetic algorithm.



**Figure 1.** Plant generated using the fitness function:  $[ (L \cdot A) / 2 ] \cdot S$ . Where **L** = number of leaves, **A** = surface area of a leaf and **S** = the summation of the bounding boxes in all axes.

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