

Antigravity:

It is an AI-powered, agent-first integrated development environment (IDE) launched in late 2025, designed for autonomous software development. Based on a modified VS Code, it allows developers to delegate complex, multi-tool coding tasks including writing code, running terminals, and testing in browsers to AI agents powered by Gemini 3.1 Pro.

GPU:

A Graphics Processing Unit (GPU) is a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images, videos, and complex mathematical calculations. Known commonly as a video card or graphics card, GPUs excel at parallel processing—handling multiple tasks at once, making them crucial for gaming, AI, machine learning, and video editing.

CUDA:

A computing platform and programming model created by NVIDIA that allows developers to use NVIDIA GPUs for general-purpose computing (GPGPU) rather than just graphics rendering. It accelerates compute-intensive applications—like AI training, scientific simulations, and video processing—by enabling thousands of GPU cores to work in parallel.

What is Adaptive Mutation?

A genetic mutation strategy when genetic change varies depending on an organism's performance.

- Low performance/High stress environment = Higher mutation
- High performance/Low stress environment = Lower mutation

What is a Neural Network?

A neural network is a machine learning model inspired by the human brain, using interconnected nodes (neurons) arranged in layers to process data, recognize complex patterns, and make predictions. They form the basis of deep learning, automatically adjusting internal weights based on data to improve accuracy in tasks like image recognition, natural language processing (NLP), and forecasting.

What is Nash Equilibrium?

A game theory concept where everyone has chosen their best strategy. No player can benefit by changing their strategy alone.

What is Policy Entropy?

A measure of how random an agent's actions are.

- High entropy = more exploration & less predictable
- Low entropy = high confidence & more predictable

What is Entropy Variance?

The statistical variance of all individual agent's policy entropies within a single generation. Entropy variance looks at how different these entropies are from each other across the population.

- High variance (0.05) = agents disagree & play randomly
- Low variance (0.001) = agents are converging but not fully settled
- ~ Zero variance (<0.001) = agents converged => **Nash equilibrium**

What is Welch's t Test?

A robust statistical test used to compare the means of two independent samples to determine if they come from populations with equal means. Unlike Student's t-test, it does not assume equal population variances (homogeneity of variance) and is more reliable when variances or sample sizes differ.

$$t = \frac{\Delta \bar{X}}{s_{\Delta \bar{X}}} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{s_{\bar{X}_1}^2 + s_{\bar{X}_2}^2}},$$

What is Cohen's d Test?

Cohen's d is a standardized effect size designed to measure the difference between two group means, when the null hypothesis has been rejected. It estimates the actual size of the difference observed and whether that difference is small, medium or large.

Cohen's d formula

Explanation

$$d = \frac{\bar{x}_1 - \bar{x}_2}{s}$$

- $\bar{x}_1$ = mean of Group 1
- $\bar{x}_2$ = mean of Group 2
- s = standard deviation

Relative size	Effect size	% of control group below the mean of experimental group
	0.0	50%
Small	0.2	58%
Medium	0.5	69%
Large	0.8	79%
	1.4	92%