Model counting, or #SAT, is a generalization and extension of the most important problem in computer science: the Boolean satisfiability problem, or SAT, which is the problem of determining how to logically satisfy a list of constraints or, equivalently, how to set the inputs of a circuit to make it output TRUE. In fact, it is considered so important that the Clay Math Institute offers a million dollar prize for its resolution — SAT is solvable in polynomial time only if \( P = NP \). The applications of SAT to industry and science in general, both theoretical and practical, cannot be underestimated. Protein folding, differential equations, and machine learning would all be efficiently solvable if one could solve SAT efficiently, and as an extension of SAT, #SAT is an even harder problem with an even wider range of applications, including all combinatorial problems and Bayesian models. In fact, the security of the entire Internet rests on the assumption that SAT can't be solved easily — all cryptosystems are based on NP problems that trivially reduce to SAT. The researcher developed an entirely novel algorithm that breaks from the traditional DPLL algorithm that is the focus of almost all research on satisfiability. Several advantages were shown over DPLL, most notably the ability to parallelize, which allows increasing performance by an arbitrarily large factor. By approaching the problem from an entirely new perspective, the algorithm developed serves as a new framework for research on model counting, much like DPLL has since its development forty years ago.