Brownian Motion as a Source of Entropy for the Generation of Random Numbers

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With the advent of modern computing capabilities, the need for large quantities of high quality random numbers has increased dramatically. These numbers can be used in cryptography for the production of encryption keys and password salts, or in scientific simulations. Because of this need, a random number generator that is capable of producing numbers of a very high quality is an invaluable resource. The goal of this project was to produce such a generator that utilized Brownian motion as an entropy source. A program was written in the C programming language that produced numbers based on Brownian motion. The numbers produced were subjected to a battery of tests and found to be sufficiently random.

Awards Won: