

# On a Quasi-Optimal Search Algorithm and the Jacobi Theta Function

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November 23, 1998

## Abstract

A. Odlyzko has examined the performance of various strategies for searching maxima or zeros in an unknown environment. He gave an algorithm which is quasi-optimal in average for finding the maximum of a random walk. In the same context, using an enumeration due to Odlyzko, this work shows that the limit law of the cost of the search is the same one for all quasi-optimal algorithms. This law is characterized in terms of the Jacobi theta functions and of the Brownian motion.

This is joint work with Jean-François Marckert and Marc Yor.

## Bibliography

- [1] Chassaing (P.), Marckert (J.-F.), and Yor (M.). – A stochastically quasi-optimal algorithm. – Preliminary version available at <http://altair.iecn.u-nancy.fr/marckert/maxstoch.ps>, 1998.