

## Proposition de stage M2 Master Orléans-Ho Chi Minh

COMPARISON OF MONTE-CARLO METHODS FOR PRICING AMERICAN OPTIONS

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With respect to European options, American options give the holder the right to early exercise opportunities. The corresponding optimal stopping problem has been extensively studied in the literature both from a theoretical and numerical viewpoint. The purpose of this internship is to read and compare some of the probabilistic numerical methods proposed. In particular, the student will focus on the Longstaff-Schwarz algorithm and the Schoenmakers et al. approach : a detailed description and a numerical implementation of these methods will be developed.

- F.A. Longstaff and R.S. Schwartz (2001) : “Valuing American options by simulation: A simple least-square approach”, *Review of Financial Studies*, 14:113-147.
- C. Bender, A. Kolodko and J. Schoenmakers (2006) : “Policy iteration for american options: overview”, *Monte Carlo Methods and Appl.*, Vol. 12, No. 5-6, pp. 347-362.