1014-00-307   **T.J. Deems**, **Jennifer Geis** and **Troy Tingey*** (`TroyTingey@hotmail.com`), 2909 S. Fairway Dr., Tempe, AZ 85282-4024, and **Anastasia Wong**. *Optimized Least Squares Approach For Valuation of American Options.*

Options are called derivatives because they are based upon an underlying asset, normally a stock. They give their holders the right but not the obligation to buy or sell a stock for a certain price in the future under specified terms. Pricing options is a challenge due to arbitrage or the opportunity for a free lunch. Types of options include the European, Asian, Barrier and American. Fairly pricing the American put option is of particular concern. While the explicit Black-Scholes formula exists to calculate the fair price of a European option, such a formula does not exist for American puts. Valuing an option requires numerical methods in most cases. One such method is Monte Carlo (MC) simulation. Despite its convenience, it compromises either feasible running time or desirable accuracy. Improvements upon MC simulations are made using control variates. These provide MC simulations with a reduced running time or minimized fluctuation resulting in a more stable option price. Recently, a least-squares approach was introduced for pricing American options. This new technique integrates Monte Carlo simulation with least-squares regression. Our research involves the combination of these two powerful techniques: the least-squares Monte Carlo approach with control variates. (Received September 08, 2005)