The University of Chicago
Department of Statistics
Master's Seminar

JACEK CZAJKOWSKI

Department of Statistics

The University of Chicago

"Online Poker — Analysis by CART and Random Forest"

WEDNESDAY May 18, 2005 at 10:00 am
110 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Poker is a card game that used to be limited to players meeting in a room and dealing cards. With the invent of the Internet, a lot of the poker play has moved online. There are many websites, based in various locations that allow players all over the world to engage in a game of poker with actual money at stake. There is no ability to read particular player tells, that will reveal information about their cards online, but all of the other parts of the game are present, which still makes an internet poker game meaningful. Because the game of poker is a game of imperfect information, there are various strategies that work well against various players but no single strategy is superior for even most situations. Texas Hold'em is a variation of poker in which some of the cards are revealed on the table and are shared by all players, giving everyone more information about the possible hands that opponents might be holding. This information and its use makes it the most complex game of poker played. I have compiled a dataset of player decisions in an online poker game of Limit Texas Hold'em and explanatory variables about the particular state of the game that is available to the player making the decision. I use CART to build a model to predict the action that the player will take when facing a particular table state. Additionally I present the Random Forest technique by Leo Breiman and its use in gaining additional information about the structure of the model.