Engineering Professors Tackle the "Topsy-turviness" of College Football Rankings

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Tampa, Fla. (October 28, 2009) – Your favorite college football team is ranked in the top ten. They lost to an unranked team over the weekend and now you're dreading how far they've dropped in the polls or if they are still in the rankings. This phenomenon is called "topsy-turviness" according to Dr. Autar Kaw, professor of mechanical engineering and Dr. Ali Yalcin, associate professor of industrial and management systems engineering. When high-ranked teams lose to low-ranked and unranked teams, the media calls it a wild or topsy-turvy week. To quantify this hype, the professors developed a metric called the *TT factor*.

"We may not be able to help you with betting the odds, but we surely can tell you exactly how wild the college football weekend was," said Dr. Kaw.

In October, the professors published a paper titled "A Metric to Quantify the Topsy-turviness of a College Football Season" in *Chance* magazine a publication of the American Statistical Association. Here's how the TT factor works.

At the end of each college football week, the Associated Press (AP) poll rankings are calculated by polling 65 sportswriters and broadcasters across the nation. Each voter supplies his or her ranking of the top 25 teams. The individual votes are added by giving 25 points to the first place vote, 24 points to the second place vote, etc. The addition of the points then produces the list of the AP top 25 teams of the week.

The method to find the *Week TT Factor* is based on comparing the AP Top 25 poll rankings of schools from the previous week to that of the current week. The difference in the rankings of each school in the AP Top 25 from the previous week to the current week is squared, allocating proportionately higher importance on bigger week-to-week changes in rankings for a given team.

The *TT factor* for the current week is calculated based on the difference between the AP rankings in current week and the previous week. The TT factor can vary between 0 and 200; the lowest TT factor recorded so far is 8 and the highest is 72.

The *Season TT factor* is also calculated at the end of each week to gauge how topsy-turvy the season has been so far. The season *TT factor* is calculated using weighted averages of the Weekly *TT factors*. Based on statistical analysis of the *TT factors* for six recent seasons, the professors consider a week in which the *TT factor* is greater than 54 to be highly topsy-turvy and if less than 30 to be very stable.

"It is not declared to be a wild football week till the topsyturvy factor is posted," Dr. Kaw added.

To see how topsy-turvy the rankings have been since 2002 as well as this season, go to http://www.eng.usf.edu/~kaw/ttfactor/index.html