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UMass Honors Phenom from Jamaica Plain

AMHERST, Mass. – The University of Massachusetts Amherst has chosen Jamaica Plain resident Ivan Bercovich, an electrical engineering major and honors student, as one of 13 graduating seniors who will be presented with 21st Century Leaders Awards during the 139th Annual Commencement on Saturday, May 23, in McGuirk Alumni Stadium.

Among many other activities, Bercovich is the leader of a team of students that designed and built a “Personal Head-Up Display,” or HUD, that effectively works as an OnStar navigation system for pedestrians. Bercovich and his HUD were featured in the *Boston Globe* (http://www.boston.com/business/technology/articles/2009/05/11/a_head_up_display_for_wayward_travelers/). He has also done research on a system to beat the stock market by using the electrical engineering principles of “signal processing” as a guide.

The 21st Century Leaders Award recognizes students who are academically accomplished and who have contributed to UMass Amherst through exceptional achievement or have enhanced the reputation of the campus.

“Visitors to a new area struggle to find their way around,” says Bercovich about the problem addressed by the HUD. “Often they can be standing right in front of the building they are looking for without even realizing it. It would be very helpful if there was a system which would place large virtual labels above buildings the user was looking at, as well as information specific to buildings in the user's field of view.”

Admittedly, the HUD doesn't give its wearer the panache of Fred Astaire in a top hat. It looks like a space-age welder's helmet and contains such instruments as gyroscopes, compasses, a GPS and accelerometers. Bercovich and company hope to miniaturize the device. But the HUD is so brilliantly conceived that it won first place in the Senior Design Competition run by the UMass Department of Electrical and Computer Engineering and second place in the regional Senior Design Competition staged by the Institute of Electrical and Electronics Engineers.

Bercovich has also been using the tricks of his own trade to work out a sound stock-market investment strategy that will make sharp downturns, such as the current recession, irrelevant in the long run. His premise is that investors have to make long-term commitments to their stocks, 20 years in this case, regardless of short-term volatility in the market. Bercovich's method is based on a scientifically proven engineering technique known as “signal processing,” meaning the analysis, interpretation and manipulation of signals. In Bercovich's research, the “frequency” of the signal is represented by the up and down graphing of closing stock-market prices over the last century.

“I'm using the same engineering technique that one would use to process a signal,” says Bercovich. “So the signal will have a pattern, or frequency, and it will have noise. In my research, we look at the fluctuations in the market as frequency and the market volatility as the

noise. So, when I am studying volatility I am really trying to determine how noisy the market is. It's much the same as trying to receive a radio signal when it is thunder-storming.”

The 21st Century Leaders Award recipients are nominated by faculty for strong leadership qualities, noteworthy original research, community service, overcoming extraordinary personal circumstances or public presentation through art, performance or athletic ability. This is the seventh year the awards have been given. The awards are sponsored by the UMass Amherst Chancellor's Office and the Alumni Association.

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