

NeuroShell Trader

After creating Sylvain Vervoort's trailing stops in the May and June 2009 parts of this series, we decided to put our own artificial intelligence spin on the July Vervoort tip. Instead of crafting Vervoort's rule based Trailing Resistance & Support Stops, we took roughly the same indicators and fed them into a neural net. We let the neural net figure out the entry and exit points.

To create the Trailing Resistance & Support Stops neural net, select '**New Prediction ...**' from the '**Insert**' menu and use the Indicator Wizard to add the following indicator inputs to the net:

TP – Support (from the Turning Points add-on)
TP-Support (High, Low, Nhood = 2, TPnum = 1)

TP – Resistance (from the Turning Points add-on)
TP-Resistance (High, Low, Nhood = 2, TPnum = 1)

ATR Simple
ATR (High, Low, (Lag (Close, 1)), Avg Periods = 20)

We built four variations of this neural net model, each of which took about three to seven minutes to set up and train. We used the same stocks as the Vervoort article with data back to January 16, 2003. We backtested the neural net until May 2009 to see how the models worked during the market crash from late 2008 to early 2009. The models invested \$1000 in each stock and included a 0.1% brokerage fee each way, as Vervoort did.

The first model traded Long only. It was created *without* using the Trader's genetic algorithm optimizer. This model generated a profit of \$158,280 for all stocks in the portfolio.

The second model traded a Long and Short Reversal system, but again did not use the genetic algorithm optimizer. This model produced \$175,235 in profits for all stocks combined.

The third model used the genetic algorithm optimizer for a few seconds on each stock to find more profitable versions of the average period in the Average True Range as well as the number of bars left and right of the pivot points for the Support and Resistance indicators. The resulting profit was \$292,059.

The fourth model performed the same genetic algorithm optimization over all of the stocks in portfolio rather than each stock individually as in the third model. It found a single set of indicator parameters that worked for all of the stocks. This model showed a profit of \$194,751. The neural network found that the Turning Points Resistance indicator had an importance of 35% towards the overall model, while the Turning Points Support indicator contributed 40% and the Simple Average True Range indicator contributed 24%.

While the neural net found its own entry and exit points for this model, it may be combined with other rules or traditional stops in the NeuroShell Trader's Trading Strategy Wizard.

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Figure 1: Trends Neural nets Long – This neural net used support and resistance indicators along with Average True Range to find profitable buy and sell points in a Long only trading system. The net used default values for the indicators.

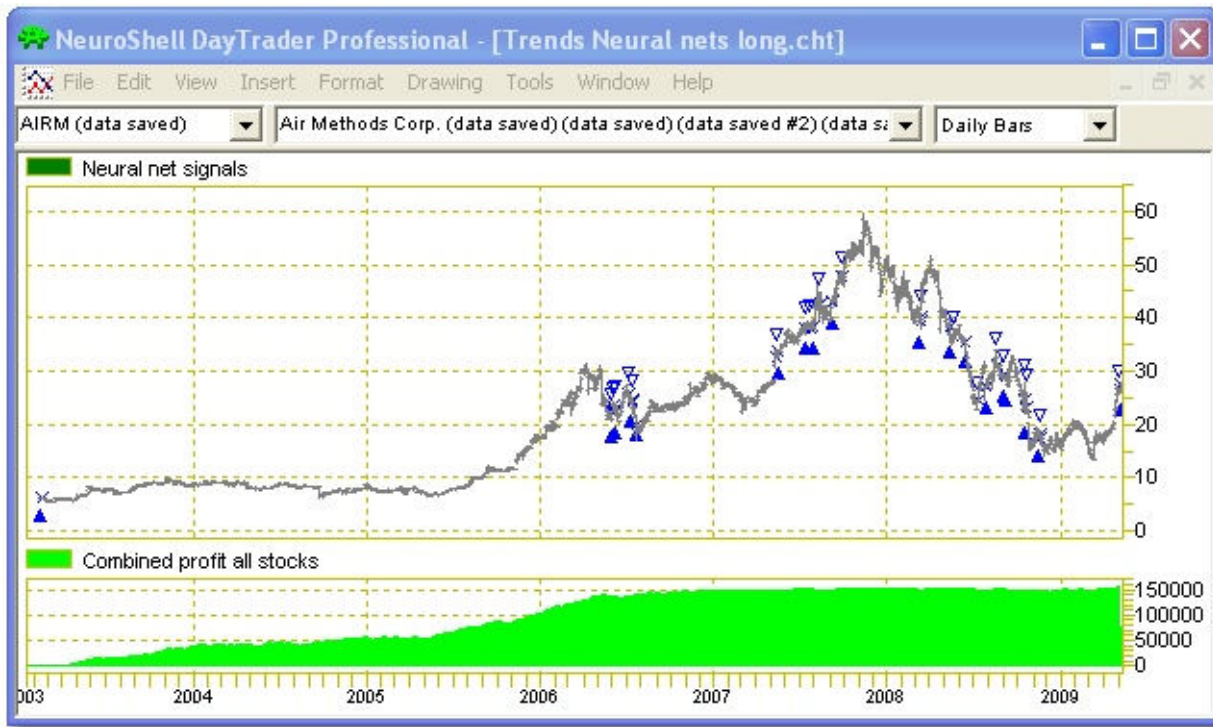


Figure 2: Trends Neural Nets Long and Short – This neural net used the same inputs for a Long and Short trading system; again with default values for the indicators. Profit rose by approximately \$17000 compared to the Long only model.



Figure 3: Trends Neural Nets Some Optimization – This neural net combined Long and Short trades along with genetic algorithm optimization of the periods in the Average True Range and the pivot points for the Support and Resistance indicators. It produced the largest profit of all of the models, \$292,059.



Figure 4: Trends Neural Nets Common Optimization – This neural net found a universal set of indicator parameters for the Average True Range periods and pivot points. It produced a profit of \$194,751, which beat the non-optimized models, but not the third model customized for each stock.

