



## MEDICAL COLUMN

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Discovering patterns, either in the form of relationships or groupings, is one of the potentials of AI. Above that, computers can learn or be trained (yes! – very much like a dog is trained to guide a blind person), or even can self-train to do anything from simple to complex tasks.

How computers learn and self-train is behind the concepts of Machine Learning (ML) and Deep Learning (DL). The dividing line between ML and DL may be diffuse, but DL has more to do with complex, variable, unstructured and ‘messy’ data. The potential of discovering patterns, relationships, groupings, predictions and of being able to process natural language is more typical of DL.

How is this done? This brings us to the concept of Artificial Neural Networks (ANN – aren’t you getting tired of acronyms?). Neurones in the human brain consist of many dendrites (input endings), a body (the processing unit with the cell nucleus) and a single axon (output ending). Dendrites receive signals from upstream neurones. The signal is processed within the body and then sent

downstream via the axon, stimulating dendrites of other neurones downstream, and so on. By creating neurone-like units called perceptrons and sandwiching many of these into successive layers, each feeding the next, executing algorithms (programmes), the process from the input layer to the output layer mimics what a ‘brain’ would do. Recall that in DL the algorithms can be self-generated by the computer and not by the humans watching the process.

Remember, that as good as AI via DL can get, at present it is only as good at what it has been trained to do. There’s no need to worry about HAL coming to wipe us out or fear Terminator returning from the future to weed out all the Sarah Connors in town.

For a very graphic and basic description of Artificial Intelligence, check this website: <https://okai.brown.edu/index.html>. It’s short (you can cruise it in 15-20 minutes) and it has many links to expand our knowledge or simply satisfy your curiosity.

## BACK IN TIME

by Tony Beckwith  
[tony@tonybeckwith.com](mailto:tony@tonybeckwith.com)

### Slingshot Cowboy

Cowboys played an important role in my childhood. They were my heroes. I wanted so much to be like Tom Mix, Lash LaRue, Hopalong Cassidy, the Lone Ranger, and all the other good guys I’d see in movies or read about in comic books. They always knew how to react when they were in a tight spot, and instinctively did the right thing. They reminded me of King Arthur’s Knights of the Round Table, my other role models, and the Knights of Old I’d learned about in history class. I doubt I told anyone at the time, but I was fairly sure I could learn more from cowboy movies than I ever could at school.

The most exciting moment of any little boy’s birthday party in Montevideo at that time was when the lights were switched off, the rather rickety rented projector whirred, and we watched a black-and-white cowboy movie, perched on sofas and chairs and sprawled on the floor in the birthday boy’s darkened living room. There was, of course, considerable interaction



between the screen and the audience. During the inevitable saloon brawls, we staged our own mock fights, throwing ourselves into fake punches and dramatic falls with all the enthusiasm of extras on the set. Our manly dialogue came straight from the soundtrack: “Why, you . . . !” and “Take that, you . . . !” and “Ooooofff!” and so on. The parts I loved best were the wild horseback rides when the sheriff’s posse fought running battles with train robbers,



## BACK IN TIME

Continued...

cattle rustlers, or Indians, the thunder of galloping hooves and the shrieks and whoops of the warriors filling my head with romantic wonder.

When I was just a little older, I spent one of those endless summers being a bicycle bum. I rode with a small gang of like-minded boys, all similarly blessed with dubious social value at that stage. Our bikes were central to everything we did, and we were on and off them all day long. Mine was a tall, gangly Triumph, midnight black with chromed handlebars. It may have looked like a bicycle to anyone else, but to me it was my horse, my gallant stallion, my noble steed. In my mind we had a sort of Roy Rogers-Trigger relationship. Being ten years old really wasn't that bad, for me.

Our gang lived in Pocitos, but we roamed far and wide, mainly along the Rambla, riding out to Carrasco to spend countless happy hours on the relatively deserted beaches on the eastern fringes of the city.

The busses and trucks that lumbered along that coast road were too tempting to resist and, despite repeated parental prohibition, we'd ride up behind them and grab hold of something to hang onto. It was enormously satisfying to get a free ride like that and be towed along for a while until the drivers spotted us and used a variety of tactics (and salty language) to make us let go. I suppose the fact that none of us ever had an accident during one of these episodes says a lot about our bicycling skills.

Our home turf was a lonely, barely used road that hugged the coast between Pocitos Beach and the Punta del Buceo, with empty fields on one side and the open sea on the other. A low wall ran alongside the field, pockmarked and crumbling, in about the same decrepit condition as the road. The ground was littered with rubble and small stones, some of which were very beautiful, professionally speaking. I should explain that our other passion that summer was the slingshot—the catapult as we called it then, or *honda* if we were speaking Spanish—and we always carried one strung around our necks.



To serious slingshot aficionados like us, the pebbles on that road were another irresistible temptation.

We learned to gather our ammunition without dismounting, leaning way over in the saddle, just like cowboys on horseback did in the movies, and scooping up stones as we coasted down the road. From that angle we spotted the potential of the low wall, and it wasn't long before we had tin cans and empty bottles lined up and were shooting at them from under the crossbar. Did I say crossbar? I meant the belly of our horses. And the slingshots, of course, were really our Winchesters.

With practice we became good marksmen and contributed generously to the environmental pollution and degradation of our part of town. Some of us went on to use our talents in ways I'm sure we'd rather forget (I'll name no names for the children's sake). In my case, I have a gnawing sense of karmic debt concerning the city's street lighting along the

Rambla at the Casino Carrasco Hotel. Those large, elegant globes looked like huge harvest moons, gorgeous golden orbs serenely suspended in the night sky, until . . . a phantom horseman appeared out of nowhere, did his dread work, and was gone!

Growing up was a gradual process in my case, and it took me some time to realize what a disappointment I must have been to my heroes, those straight shooters on the screen, not to mention King Arthur's Knights, who only ever used their weapons in a noble cause. Whatever I thought I was learning from those movies it certainly wasn't helping me develop my own moral compass. Until one day it finally dawned on me that that was the whole point of those adventures set in the Wild West. It was simple—I just had to choose whether I wanted to wear a black hat or a white one. At that point a light bulb switched on somewhere in my adolescent brain and the choice was easy.

Like Tonto, I wanted to ride with the Lone Ranger. Hi Ho, Silver, away!

