Machine Learning for Everybody: Episode IV, V, VI
Bullets, Armor, Weapons, and a little Additive Manufacturing
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So, why should I spend 2 sessions learning ML from someone who just learned about it?

GREAT QUESTION. Thank you for asking! Why learn this from me and not some world-renowned expert? Well, first off, maybe because I was like you a few months back. Some people do not actually remember how they learned machine learning, i.e., the intuition, the concepts, the math just sort of gradually seeped in over the course of their undergraduate or graduate degree. For me, I just learned this, so it is fresh in my mind – what concepts I grasped, which ones were harder to grasp, what are the key concepts that I would tell someone "if you know anything in machine learning, you got to know this." I sat down, I listed what I felt were key concepts: regression, classification, linear regression, logistic regression, regularization, variance-bias tradeoff, loss/cost functions, activation functions, neural networks, dropout, convolutional neural networks, LSTMs, etc. Then, I built a slide deck around them. I was hoping for one slide per concept—I miserably failed. But it is a comprehensive entry point into machine learning. And guess what? Since I am a DEVCOM ARL scientist, I chose an Army-related dataset—ballistic penetration of aluminum armor. No cat classification datasets or Boston housing price datasets here; just straight up bullets being stopped by armor. (1st spoiler alert – the houses are too expensive in Boston; 2nd spoiler – ok, I did use one cat example, but it was He-man's Battlecat… totally relevant for military operations). I have condensed 7 months of online machine learning courses into TWO sessions (yes, I threw some of it out), with a few Excel-programmed neural networks to boot (you're crazy Mark! ML experts everywhere will unite to overthrow you! …or give you a sad face emoji, at least). I've separated it into 3 modules: machine learning basics, neural network basics, and neural network zoo (CNNs, RNNs). Not everything, but a good start. At least I hope so. Speaking of hope, wasn't that the name of the original Star Wars? Hmm, that gives me an idea. (Cue music: Da-da-da duh... duh... da-da-da duh-duh, da-da-da duh-duh, da-da-da-daaa…)