

Re: Finding useful functions– part 1

Source: <http://sci.tech–archive.net/Archive/sci.cognitive/2004–10/0860.html>

From: David Longley (*David_at_longley.demon.co.uk*)

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In article <tKdgd.17800\$Qs6.1523401@news20.bellglobal.com>, Wolf Kirchmeir <wwolfkir@sympatico.ca> writes

> *Stargazer wrote:*

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>>

>>> *Stargazer wrote:*

> *[snip a number oif clear answers to my questions – thanks. I think. :-)]*

>> **SG**

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> *Your answers clear up some misconceptions on my part, but they also show terminological obfuscation on the part of artificial neural network researchers.*

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> *Throughout your explanation, the term "signal" is used ambiguously. It sometimes seems to apply to an input to a single neuron, and sometimes to a collection of inputs to a network of neurons. IMO this is confusing. Very. It's a hierarchy error, which always cause trouble.*

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> *Also, calling the calculated output of a NN a "training signal" because it's compared to the desired outcome is confusing, at least to me, for whom a "training signal" is a "signal that trains", ie, an input to the NN. And the use of "signal" for both inputs and outputs is confusing, since IMO an output is a signal to the experimenter, not the NN.*

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> *All in all, my immediate impression is that workers in artificial NNs don't have a clear conception of what they are trying to do. Not that that is a bad thing – after all, it's early days yet, and one of the functions of research is to clarify the questions one is trying to answer. My comments as a pure outsider may or may not help clarify vagueness. Either way, thinking about your explanations has been interesting.*

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Another way of putting it is that the early ANN folk didn't know what was being done in the EAB back in the 30s, 40s and 50s (note that all of the former folks' work came out of those decades but they seem to have an uncanny knack of misrepresenting of just not understanding their sources). Nor did they understand the way that philosophy was going in

the same period (most "AI" and "Cognitive Scientists" *still* appear to be pre 1929 Carnap or early Wittgensteinian). It appears to me that they took some basic "programming" algorithms which *simulated* (or at best controlled) some of the experimental schedules/equipment (in those early days it was largely switchboard and other telephonic paraphernalia) and just renamed their statistical models or descriptions of this "rule governed behaviour" something more catchy ie "Artificial Neural Networks" or "cell assemblies" (Hebb was always talking about a Conceptual Nervous System and he did it rather poorly relative to the efforts of Hull, Guthrie or Estes – he just said it all in more popular, familiar, intensional language, ensuring that more science–shy people lapped it up!). This propensity to generate misnomers and repackage, plagiarise or re–badge others' *empirical* work as something new and "algorithmic" or "analytic" simply through name changing allows them to sell a load of nonsense to the unwary who don't see this sleight of hand for what it is. When they make out that what they have to say somehow captures what's essential about "cognitive" or "mental" life I just see fraud, something which I think is endemic within psychology, and has been for decades. It makes "Cognitive Science" a Ptolemeic monster, which in my view is far worse than the original, as this monster has no practical utility over the original behavioural work itself, and yet actually gets in the way of advancing that science by soaking up funding on grounds that it's closer to common sense folk psychology! Such people make quite ludicrous grant proposals, with fantastic promises, which make the realistic aims of real science look trivial in comparison. This just shapes up lying, and turns science into marketing. Such "leaders" take students and other naive folk back to ways of thinking which were abandoned well over a century ago. They're entrepreneurs!

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David Longley