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Abstract: Among the main fundamental challenges related to physics and human intelligence are: How can we reconcile the free will with the deterministic character of physical equations? What is the physical meaning of extra spatial dimensions needed to make quantum physics consistent? and Why are we often smarter than brain-simulating neural networks? In this paper, we show that while each of these challenges is difficult to resolve on its own, it may be possible to resolve all three of them if we consider them together. The proposed possible solution is that human reasoning uses the extra spatial dimensions. This may sound weird, but in this paper, we explain that this solution is much more natural than how it sounds at first glance.

SAT1 – A5

Why Normalized Difference Vegetation Index (NDVI)?

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Abstract: Plants play a very important role in ecological systems – they transform CO2 into oxygen. It is therefore very important to be able to estimate the overall amount of live green vegetation in a given area. The most efficient way to provide such a global analysis is to use remote sensing, i.e., multi-spectral photos taken from satellites, drones, planes, etc. At present, one of the most efficient ways to detect, based on remote sensing data, how much live green vegetation an area contains is to compute the value of the normalized difference vegetation index (NDVI). In this paper, we provide a theoretical explanation of why this particular index is efficient.

SAT1-B1

Binary Image Classification Using Convolutional Neural Network for V2V Communication Systems

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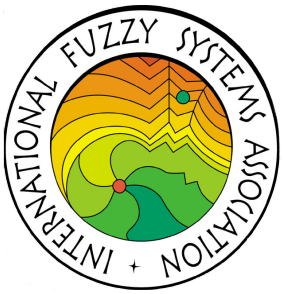

Hanoi, December 2021