

An Artificial Intelligence Approach to Modeling in Social Science

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To cite this article:

Juan Carlos Jesus Vazquez, Julio Javier Castillo, Leticia Edith Constable, Marina Elizabeth Cardenas, Juan Carlos Guillermo Vazquez. An Artificial Intelligence Approach to Modeling in Social Sciences. *Journal of Health and Environmental Research*. Special Issue: *Health and the Environment as a Resource for the Reduction of Social Inequalities in Argentina*. Vol. X, No. X, 2021, pp. XX-XX.
doi: 10.11648/j.XXXX.2021XXXX.XX

Received: MM DD, 2021; **Accepted:** MM DD, 2021; **Published:** MM DD, 2021

Abstract: Computer Science has contributed to social sciences since decades ago: connecting people that build virtual communities where the interactions can be investigated, developing tools for statistically analytics, designing models that allow the analysis and simulation of the most diverse types, among many others. In this article, we describe an artificial neural network to model a theoretical framework for risk, housing, and health problematic, called DRVS (Diagnostic methodology for risk determination of urban housing for health), which uses a holistic approach for community and environmental health. The methodology also exposes digital clinic history for families and communities, developed to support the acquisition of necessary data. This software has advantages for the transference and application of the DRVS in different locations since it constitutes an expert system for the determination of local social indexes and supports the quantitative validation process for the underlying social theory. On the other hand, as many artificial intelligence techniques, it has constraints: unlike explicit logic inferences, artificial neural networks work as «black boxes», not explaining how they got the result; they have a strong dependency of the representativeness of training data and introducing new knowledge that may improve their results and performance is difficult (new data, addition or remotion of determining factors for the underlying social model, weighting factors, etc.). This article also shows some techniques and ideas on how to deal with the identified constraints.

Keywords: Artificial Neural Network, Family Clinic History, Risk, Health, Housing
