

Model Maker 1: Using Model Based Ontologies for Agent Based Estimation and Learning of R Packages

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Model Maker is .NET 3.5 software application for statistical modeling using R on the Windows 7 platform. Model Maker was developed as a standalone bundle of services for the specification, estimation, validation and publication of advanced linear and nonlinear models for both univariate and multivariate space-time data. Because of the difficulties in writing scripts to do advance statistical analysis in statistical and mathematical packages such as R, S-Plus and MATLAB, Model Maker minimizes the amount of the programming effort needed by a researcher to conduct these types of space-time analytics. Using a visual programming technique adopted in pipeline approaches of Microsoft Robotics Studio and S-Plus Enterprise Miner along with ontologies and agents, researchers using Model Maker can drag and drop resources, i.e. data, transformations, models and published output onto a Model Sketch canvas and mix data sources, models, variables, to experiment with different research designs. Furthermore, at the core of the application is an agent based programming model that permits the use of skill-based ontologies to extract method information from CRAN packages. We present the Model Maker tool and show how modeling ontologies in both fMRI and EEG research can be used to simulate the actions and interactions of autonomous agents that lead to article publication in TeX markup.