EXPLORING VISUAL PROGRAMMING CONCEPTS FOR PROBABILISTIC PROGRAMMING

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1. Motivation

There is, among several domains with interesting and relevant problems to solve (computer vision, cryptography, biology, fraud detection, recommender systems, ...) [1], the recurring necessity to be able to make decisions in the face of uncertainty using machine learning (ML) methods. One of the ML approaches that can me used to tacke the problem is to build a probabilistic model through the use of a probabilistic programming language (PPL), let you write your model as a program and have off-the-shelf inference [2]. Despite PPLs' power and flexibility, it's difficult for their target audience (data scientists, statisticians, mathematicians, ...) to adapt to the textual interface these languages provide, which lack the graphical intuition provided by other tools they are accustomed to. We believe this negatively affects productivity and slows down the adoption of PPLs [3].

2. Goals

We aim to overcome the difficulties in learning a new language, either for inexperienced developers or seasoned ones, such as learning yet another syntax or getting accustomed to the language's idioms. It is known that typical languages are difficult to learn and use [4] and that there are advantages in providing a language with a visual interface [5].

The goal of this dissertation was to develop a Visual Programming Language (VPL) with probabilistic programming capabilities. The target audience is programmers and data scientists with background knowledge in statistics which aren't still comfortable with full blown PPLs, but wish to educate themselves on the topic so they can eventually leverage the power of this novel machine learning approach.

3. Work description

3.1. Blbla

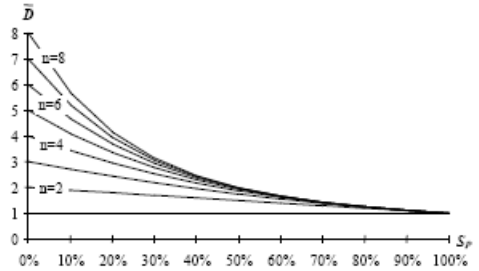

Fig. 1 – Esta é a legenda da figura

4. Conclusions

References

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