Talk Proposal
Workshop on Applied Machine Learning Management, KDD2022

1 Title

ML Prescriptive Canvas for Optimizing Business Outcomes

2 Abstract

Data science is considered by some to be the new electricity as it has a potential to improve business in a variety of verticals. While the lion's share of data science projects use a predictive approach, to actually make a change, these predictions should become decisions. However, such a two-step approach is not only sub-optimal, but might even degrade performance and fail the project. The alternative is to follow a prescriptive framing, where actions are "first citizens" so that the model produces a policy that prescribes an action to take, rather then predicting an outcome. In this paper, we explain why prescriptive approach is important and provide a step-by-step methodology: the Prescriptive Canvas. The latter aims to improve framing and communication across the project stakeholders including project and data science managers towards a successful business impact.

3 Potential Discussion Points

- Can predictive be enough to gain business success?
- What kind of prescriptive analysis you often use?
- Give an example of a successful project which followed a prescriptive approach
- The role of Causal inference in Enterprise DS.

4 Relevance

We suggest a high level working model we call the prescriptive canvas to improve project success probability by better communication and framing between stakeholders. Specifically we overview causal inference as it is considered to be one of the challenging areas of DS [1]. We touch 3 out of the 10 essential data science practical topics: prescriptive analytics, causal inference and uplift modeling [2].

5 Short Bio

Hanan is a data scientist at Vianai Systems where he develops methods to optimize business outcomes via prescriptive approach (causal inference, bandits, and RL). Hanan holds a Ph.D. in computation neuroscience (Hebrew University) specialized in computational modeling of behavior and neural activity. He holds also a B.Sc. [cum laude] in Physics, B.Sc. [summa cum laude] and M.Sc. [cum laude] in Electrical Engineering (Tel Aviv University).

Gerben Oostra is a Senior Data Scientist at Vianai Systems. He has a background in consultancy, machine learning engineering, and causal inference.

6 Brief Company Portrait

Dealtale, a VIANAI System company is leading Revenue Science platform based on causal inference and prescriptive analysis.

7 Existing References by the Authors

For Effective Treatment of Churn Don't Predict Churn

Regards,

Hanan Shteingart and Gerben Oostra.

[1] Wing, J. M. (2020). Ten Research Challenge Areas in Data Science. Harvard Data Science Review, 2(3). https://doi.org/10.1162/99608f92.c6577b1f

[2] Lo, V. S. Y. (2020). Top 10 Essential Data Science Topics to Real-World Application from the Industry Perspectives. Harvard Data Science Review. https://doi.org/10.1162/99608f92.4ff28438