

Article

# Explainable Machine Learning Approaches for Modeling Shock Lapse in Term Life Contracts

Kevin Kuo<sup>1</sup> , Frankie Logan<sup>2</sup>, Bob Crompton<sup>3</sup>

<sup>1</sup> RStudio, Boston, MA, USA; [kevin.kuo@rstudio.com](mailto:kevin.kuo@rstudio.com)

<sup>2</sup> KPMG, Wayne, PA, USA; [flogan@kpmg.com](mailto:flogan@kpmg.com)

<sup>3</sup> Actuarial Resources Corporation of Georgia, Alpharetta, GA, USA; [bob.crompton@arcga.com](mailto:bob.crompton@arcga.com)

\* Correspondence: [kevin.kuo@rstudio.com](mailto:kevin.kuo@rstudio.com).

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**Simple Summary:** A Simple summary goes here.

**Abstract:** A single paragraph of about 200 words maximum. For research articles, abstracts should give a pertinent overview of the work. We strongly encourage authors to use the following style of structured abstracts, but without headings: 1) Background: Place the question addressed in a broad context and highlight the purpose of the study; 2) Methods: Describe briefly the main methods or treatments applied; 3) Results: Summarize the article's main findings; and 4) Conclusion: Indicate the main conclusions or interpretations. The abstract should be an objective representation of the article, it must not contain results which are not presented and substantiated in the main text and should not exaggerate the main conclusions.

**Keywords:** keyword 1; keyword 2; keyword 3 (list three to ten pertinent keywords specific to the article, yet reasonably common within the subject discipline.).

## 1. Introduction

## 2. Data

Discuss data from [Rozar et al. \(2010\)](#)

## 3. Modeling approaches

### 3.1. SOA 2015 Report

Discuss model from [Xu et al. \(2015\)](#).

## 4. Results

### 4.1. Evaluation

Discuss evaluation metric and train/test split.

## 5. Discussion

### 5.1. Model explanation

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**Author Contributions:** For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "X.X. and Y.Y. conceive and designed the experiments; X.X. performed the experiments; X.X. and Y.Y. analyzed the data; W.W. contributed reagents/materials/analysis tools; Y.Y. wrote the paper." Authorship must be limited to those who have contributed substantially to the work reported.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

### Appendix A.1

The appendix is an optional section that can contain details and data supplemental to the main text. For example, explanations of experimental details that would disrupt the flow of the main text, but nonetheless remain crucial to understanding and reproducing the research shown; figures of replicates for experiments of which representative data is shown in the main text can be added here if brief, or as Supplementary data. Mathematical proofs of results not central to the paper can be added as an appendix.

## Appendix B

All appendix sections must be cited in the main text. In the appendixes, Figures, Tables, etc. should be labeled starting with 'A', e.g., Figure A1, Figure A2, etc.

## References

- Rozar, Tim, Scott Rushing, and Susan Willeat. 2010. Report on the lapse and mortality experience of post-level premium period term plans. Technical report, Society of Actuaries.
- Xu, Richard, Dihui Lai, Minyu Cao, Scott Rushing, and Tim Rozar. 2015. Lapse modeling for the post-level period. Technical report, Society of Actuaries.

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