

Flu Shot Learning: Predicting H1N1 and Seasonal Flu Vaccination

Jorge Pais, José Baptista and Pedro Duarte

up201904841@edu.fe.up.pt; up201904814@edu.fe.up.pt; up201905050@edu.fe.up.pt

Abstract—The model used in this study was a gradient boosting classifier, which was evaluated on separate test data provided by the NHFS using the area under the Receiver Operating Characteristic (ROC) curve as a performance metric. After necessary parameter tuning, the model was able to achieve a score of 0.8415.

V. MODELS

Meter aqui todos os modelos que foram experimentados

VI. RESULTS

VII. CONCLUSION

I. INTRODUCTION

Pandemics have rarely taken center stage in the way they have recently with COVID-19 in 2020. Vaccines are a key public health measure used to fight infectious diseases like COVID-19. They provide immunization for individuals, and enough immunization in a community can further reduce the spread of diseases through "herd immunity." We will look at a recent historical pandemic, also of a highly infectious respiratory disease: the 2009 H1N1 influenza pandemic.

In 2009, the H1N1 influenza virus, also known as swine flu, caused a global pandemic that was estimated to have resulted in 150,000 to 600,000 deaths worldwide. A vaccine for H1N1 became available in October of that year. In this study, we developed a machine learning model to help estimate the probability of a person receiving seasonal and H1N1 vaccines. *Dar alguma contextualizacao do que é que vai ser construido neste trabalho*

II. DATA SET ANALYSIS / DATA RESOURCES

Explicar o contexto do dataset e mostrar algumas das características dos dados, explicando algum do pré-processamento necessario a aplicar/ cuidados a ter

A. Class Balance

B. Feature Correlation

III. PERFORMANCE METRIC

Explicar aqui o que é o ROC

IV. MODEL PIPELINE

Talvez seja melhor condensar esta secção com a proxima, sob metodologia

Meter aqui aquelas figuras do model pipeline, e mostrar o esquema lógico do que vai ser construido

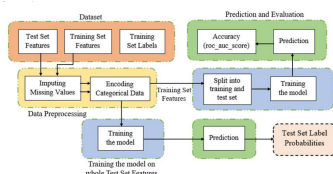


Figure 3.x.x - Model pipeline example

VIII. REFERENCE EXAMPLES

- *Basic format for books:*
J. K. Author, "Title of chapter in the book," in *Title of His Published Book*, xth ed. City of Publisher, (only U.S. State), Country: Abbrev. of Publisher, year, ch. x, sec. x, pp. xxx–xxx.
See [1], [2].
 - *Basic format for periodicals:*
J. K. Author, "Name of brief," *Abbrev. Title of Periodical*, vol. x, no. x, pp. xxx–xxx, Abbrev. Month, year, DOI: 10.1109.XXX.123456.
See [3]– [5].
 - *Basic format for reports:*
J. K. Author, "Title of report," Abbrev. Name of Co., City of Co., Abbrev. State, Country, Rep. xxx, year.
See [6], [7].
 - *Basic format for handbooks:*
Name of Manual/Handbook, x ed., Abbrev. Name of Co., City of Co., Abbrev. State, Country, year, pp. xxx–xxx.
See [8], [9].
 - *Basic format for books (when available online):*
J. K. Author, "Title of chapter in the book," in *Title of Published Book*, xth ed. City of Publisher, State, Country: Abbrev. of Publisher, year, ch. x, sec. x, pp. xxx–xxx. [Online]. Available: <http://www.web.com>
See [10]– [13].
 - *Basic format for journals (when available online):*
J. K. Author, "Name of brief," *Abbrev. Title of Periodical*, vol. x, no. x, pp. xxx–xxx, Abbrev. Month, year. Accessed on: Month, Day, year, DOI: 10.1109.XXX.123456, [Online].
See [14]– [16].
 - *Basic format for briefs presented at conferences (when available online):*
J.K. Author. (year, month). Title. presented at abbrev. conference title. [Type of Medium]. Available: site/path/file
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 - *Basic format for computer programs and electronic documents (when available online):*
Legislative body. Number of Congress, Session. (year, month day). *Number of bill or resolution*, Title. [Type of medium]. Available: site/path/file
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See [20].
 - *Basic format for patents (when available online):*
Name of the invention, by inventor's name. (year, month day). Patent Number [Type of medium]. Available: site/path/file
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J. K. Author, "Title of brief," in *Abbreviated Name of Conf.*, City of Conf., Abbrev. State (if given), Country, year, pp. xxxxxx.
See [22].
 - *Example for briefs presented at conferences (unpublished):*
See [23].
 - *Basic format for patents:*
J. K. Author, "Title of patent," U.S. Patent x xxx xxx, Abbrev. Month, day, year.
See [24].
 - *Basic format for theses (M.S.) and dissertations (Ph.D.):*
 - 1) J. K. Author, "Title of thesis," M.S. thesis, Abbrev. Dept., Abbrev. Univ., City of Univ., Abbrev. State, year.
 - 2) J. K. Author, "Title of dissertation," Ph.D. dissertation, Abbrev. Dept., Abbrev. Univ., City of Univ., Abbrev. State, year.
- See [25], [26].
- *Basic format for the most common types of unpublished references:*
 - 1) J. K. Author, private communication, Abbrev. Month, year.
 - 2) J. K. Author, "Title of brief," unpublished.
 - 3) J. K. Author, "Title of brief," to be published.
- See [27]– [29].
- *Basic formats for standards:*
 - 1) *Title of Standard*, Standard number, date.
 - 2) *Title of Standard*, Standard number, Corporate author, location, date.
- See [30], [31].
- *Article number in reference examples:*
See [32], [33].
 - *Example when using et al.:*
See [34].

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