ROYAL INSTITUTE
OF TECHNOLOGY

II2202: Third group meet

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Agenda

- Course deliverables
- Research Plan feedback
- Observations on the research plan and peer review
- Actions: peer review and time plan
- Q&A

Course deliverables (from Canvas)

- Project plan
- Presentation of your proposed research: Ethics & Sustainability
- First draft: Research plan
- Presentation and peer review draft project plans
- Qualitative exercise
- Quantitative exercise
- First draft of report
- Presentation and peer review of draft report
- Opposition before final seminar
- Final Seminar
- Final written report

Research plan feedback

- Time plan mystery (almost solved!)
- Criteria for choice (all groups shaping up)
- Grammar check (very few groups did it)
- Let both members be visible in all key steps (hmm…)
- Complete references (half of the groups OK only)
- Check your status (all groups complete except grp2)

Some (almost) anon observations
Complete references

References

[1] S. Vosoughi, D. Roy, and S. Aral, "The spread of true and false news online," *Science*, vol. 359, no. 6380, pp. 1146–1151, 2018. doi: 10.1126/science.aap9559. [Online]. Available: https://www.science.org/doi/abs/10.1126/science.aap9559

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[4] K. Shu, S. Wang, and H. Liu, "Beyond News Contents: The Role of Social Context for Fake News Detection," *arXiv:1712.07709 [cs]*, Dec. 2018, arXiv: 1712.07709. [Online]. Available: http://arxiv.org/abs/1712.07709

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[6] K. Shu, L. Cui, S. Wang, D. Lee, and H. Liu, "dEFEND: Explainable Fake News Detection," May 2019. doi: 10.1145/3292500.3330935. ISBN 978-1-4503-6201-6

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[9] K. Nakamura, S. Levy, and W. Y. Wang, "r/fakeddit: A new multimodal benchmark dataset for fine-grained fake news detection," 2020.

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Good ref list, but complete [7] and [9], very important that all refs are complete!

Some (almost) anon observations
Complete references (example 2)

References

[1] A.E. Elo, *The rating of chessplayers, past and present*. Batsford, 1978. ISBN 978-0-66-804721-0

[2] M. E. Glickman. (2013) Example of the glicko-2 system. [Online]. Available: http://www.glicko.net/glicko/glicko2.pdf

[3] M. Research. (2005) Trueskill™ ranking system. [Online]. Available: https://www.microsoft.com/en-us/research/project/trueskill-ranking-system/

[4] M. v. D. Ourania Rotou, Xiaoyu Qian. (2015, Jul.) Research memorandum ets rm–15-03: Ranking systems used in gaming assessments and/or competitive games. [Online]. Available: https://www.ets.org/Media/Research/pdf/RM-15-03.pdf

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[13] Peter Bock, *Getting it right: R&D methods for science and engineering*. San Diego: Academic Press, 2001. ISBN 978-0-12-108852-1

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Make sure all refs are complete, very important! A link is not a replacement for details, even if it is very convenient.

Some (almost) anon observations
Incommensurability and transfer of results

an heart failure occurs. In the previous studies, numerous techniques in data mining and neural networks have been adopted in order to assess the severity of a specific cardiovascular condition, such as K-Nearest Neighbor Algorithm (KNN), Decision Trees (DT), Genetic algorithm (GA), and Naive Bayes (NB). [19] Moreover, there are various researches which, by using machine learning techniques, tried to predict the risk of developing heart diseases. One of these is the study conducted by Mohan et al. [18] Here nine ML models were developed with different algorithms and their performances were evaluated. In the end, they concluded that the best results were obtained by an hybrid random forest model with an accuracy score of 88.7%. [18] This has led our choice of adopting a Random Forest algorithm for developing our model. This technique builds various decision trees and aggregate them in order to obtain the best final result. [2]

4 Research Methodology

In this study the analytical method [20] will mainly be involved. However, empirical techniques [20] may

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There is always the question of commensurability: are their circumstances (data and other factors) comparable to yours, and therefore do their choices translate to good choices for you. Think about this for your further work.

Some (almost) anon observations
Nitty gritty details and some encouragement

1 Aims, Objectives, Goals, Research questions, hypotheses

The aim of this project is to support medical authorities in fighting heart diseases with the help of Artificial Intelligence. Precisely, we would like to induce a progress in medical diagnosis through a Machine Learning-based algorithm that lead to early disease detection (based on Big Data), supporting the physician to increase the living chances of an individual. Hence, the goal is to identify the most relevant risk factors, or even finding new ones, as well as building a reliable algorithm that can predict early cases of heart diseases, hopefully allowing physicians to treat them as soon as possible. The research questions we want to address are the following:

Which are the most important features in a ML model for predicting if a patient will experience an heart disease? And by using these features is it possible to build a reliable prediction model?

We hypothesize that early prediction of heart disease will be possible given certain health information about a patient. Moreover, old males have a greater possibility than other individuals in developing hearth diseases [5]. Additionally, one of the major causes of hearth failure are the presence of hypertension (HT) and valvular disease (VHD) [6]. Therefore, outcomes of prediction are expected to be strongly related to these four facts. In the end we expect to obtain more generalized results since data belongs to subjects living in 4 different countries.

2 Background and rationale

This project builds on the idea of using Artificial Intelligence in the healthcare sector, specifically, for heart disease. We will adopt a Machine Learning supervised classifier to detect potential cases of heart failure,

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Run grammar check

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greater risk

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four (use letters up to 13)

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good section

Some (almost) anon observations
More nitty gritty and measurement details

1 Aims, Objectives, Goals and Research Question

This research project aims to train and test three different ranking models on the same data set. The models we're training and testing are Elo[1] rating system, Glicko[2] rating system and TrueSkill[3] ranking system. To achieve this aim we need to implement the three models, find a suitable data set for the models, train and finally test the models.

Goals and Objectives

The goals of this research project is to determine and compare the predictive performance of the three models as well as analyzing and comparing the three models characteristics.

Research question

How does the predictive performance and model-specific characteristics differ between the three commonly used ranking models Elo, Glicko and TrueSkill?

2 Theory/literature

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avoid short forms

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Run a grammar check to catch typos

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Things can differ in numerous ways, how do you plan to measure differences?

Some (almost) anon observations
Poor learning results

first experiment, the train loss dropped very fast, and the test loss value quickly converged near a larger value, and the accuracy rate was fixed near a smaller value. In order to improve the accuracy, we first modified the network optimization method and added a regularization term. Although the result was optimized, it was still not ideal, and the accuracy hovered around 53%.

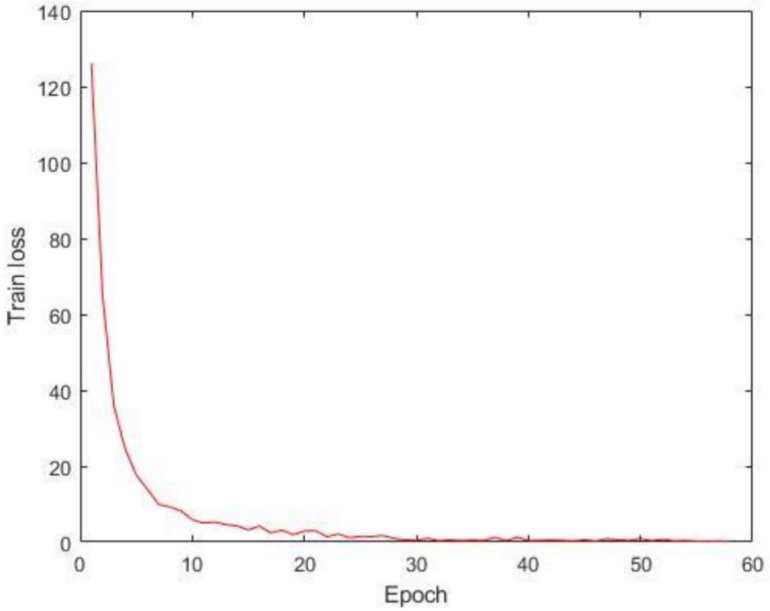

Figure 1: Result of Initial Experiment on training loss

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To be improved then, no worries

Some (almost) anon observations
Agency and congruence

These researches start from before the pandemic in particular the big tech companies have tried to analyze the points in favor and against the remote work as expressed (Prithwiraj (Raj) Choudhury 2020) in which many points of Productivity are analyzed with particular reference to the evolution of WFH work-from-home to WFA work-from-anywhere and the results of their analysis shows an increase in employee outputs. This paper in particular is an analysis started by a dataset of Microsoft company mainly located in the United States

As lead point we have taken into consideration (Michael Gibbs 2021) a paper that analyzes profiles similar to the above paper , so always in the IT world but with a dataset from Asia that always analyzes employee productivity going to analyze the various differences between activities, gender and the presence of children or not in the family.

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Usually only surname in refs

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"an analysis started by a dataset"?

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Choose UK or US English

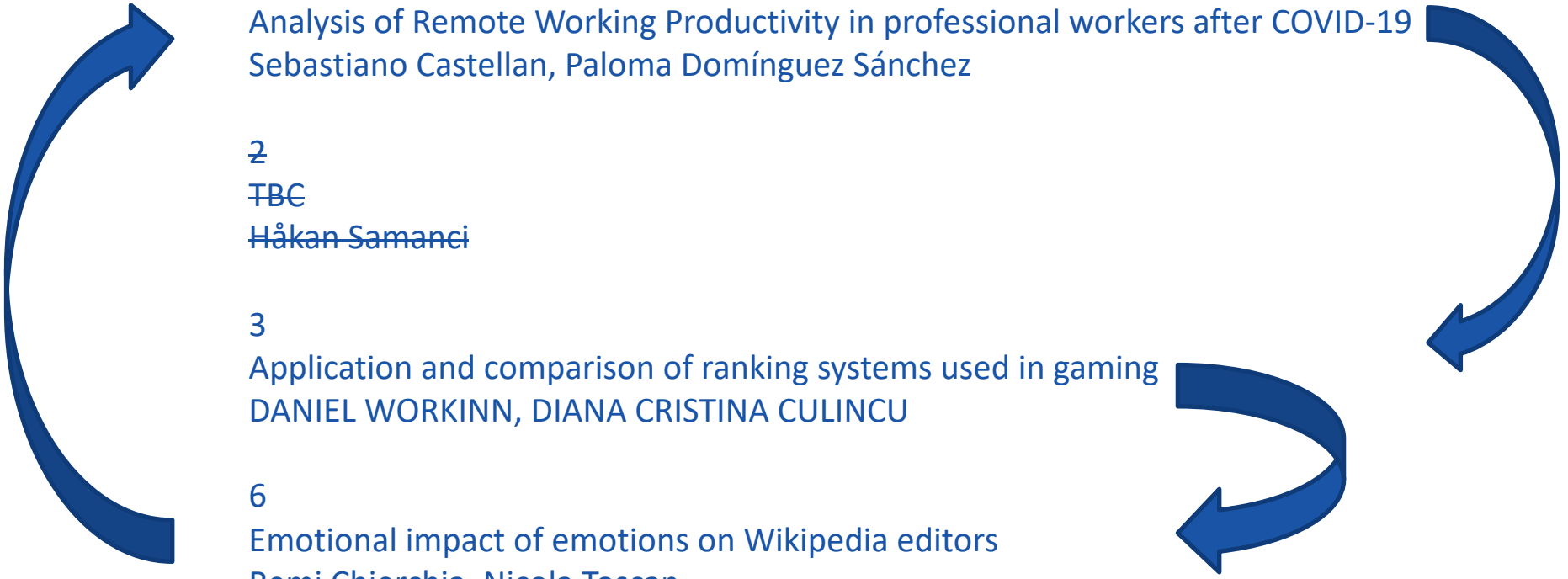
Actions
Subgroup 2: Data work processes

1
Analysis of Remote Working Productivity in professional workers after COVID-19
Sebastiano Castellan, Paloma Domínguez Sánchez

~~2~~
~~TBC~~
~~Håkan Samanci~~

3
Application and comparison of ranking systems used in gaming
DANIEL WORKINN, DIANA CRISTINA CULINCU

6
Emotional impact of emotions on Wikipedia editors
Remi Chierchia, Nicola Toscan



1 opposes 3 opposes 6 opposes 1

Actions
Time plan

- Sep 7 First group meeting (Zoom)
- Sep 28 Second group meeting (Zoom)
- Oct+Nov Individually booked feedback sessions (Zoom, IRL)
- Oct 26 Third group meeting (Zoom)
- Nov 25 Dress rehearsal with 2-min reports (15-17, Zoom)
- Dec 16+17 Final seminar and oral examination (Zoom)
  Thu Dec 16: 13-15, Subgroup 1 (Data analytics)
  Thu Dec 16: 15-17, Subgroup 2 (Data work processes)
  Fri Dec 17: 10-12, Subgroup 3 (Health data appl.)
- Jan 17 Final report written examination

Q&A