

Report on Bachelor / Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University in Prague

Student:	Bc. Jakub Hostačný
Advisor:	RNDr. Matúš Baniar
Title of the thesis:	Non-Linear Classification as a Tool for Predicting Tennis Matches

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

This master thesis analyses possibilities for developing profitable betting strategies in professional tennis league (ATP tour). More specifically, Jakub is studying machine learning algorithms and examining their prediction accuracy and betting performance for tennis matches. Beside standard logistic regression, he is also applying non-linear algorithms such as random forests, boosted trees and neural networks.

Jakub spent a vast amount of time with literature research. He proved ability to work with a large number of available articles, compare them and extract the most important information for his research. The literature review is very well structured, the text is logical and methodology well-described.

As there is no complex data source available for this topic, Jakub had to obtain and join multiple sources together. He was able to recreate many suggested features from studied articles and propose many more of his own design. For this part of the work, it was also very convenient that Jakub, as a former professional tennis player, has a good intuition for feature suggestion. This resulted in a formation of the outstanding dataset for tennis predictive modeling.

While building predictive models, Jakub paid great attention to model calibration to obtain both, accuracy and stability. At the same time, he was considering many variations for the modeling and betting strategies to the very end of his thesis. This is probably causing that his results and discussion in chapter 5 may seem a little bit confusing for a reader.

Among the main contributions of this work belongs:

- Creating an original wide dataset which also includes all important features discovered in studied articles.
- Non-linear approach to modeling using neural networks.
- Ability to outperform benchmark models and models from studied literature.

In conclusion, the thesis is well structured and very well written. **I recommend this thesis for a defense and I suggest grade A.**

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SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	27
<i>Methods</i> (max. 30 points)	30
<i>Literature</i> (max. 20 points)	20
<i>Manuscript Form</i> (max. 20 points)	18
TOTAL POINTS (max. 100 points)	95
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE:

DATE OF EVALUATION: 22.1.2018



Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F