

Czech Technical University in Prague Faculty of Nuclear Sciences and Physical Engineering

General Framework for Classicifcation at the Top

Dissertation



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Čestné prohlášení:

Prohlašuji na tomto místě, že jsem předloženou práci vypracoval samostatně, a že jsem uvedl veškerou použitou literaturu.

V Praze dne 1. prosince 2021	
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Theorem theore

Definition 0.2

Definition definition

0.1 Ranking Problems

Definition 0.3

Definition definition

0.2 Accuracy At the Top

0.3 Hypothesis Testing

Theorem 0.4

Theorem theore

Proof:

Proof proof

Proof of theorem 0.4:

Proof proof

Example 0.5

Example exampl

Introduction

Many binary classification problems focus on separating the dataset by a linear hyperplane $\boldsymbol{w}^{\top}\boldsymbol{x} - t$. A sample \boldsymbol{x} is deemed to be positive or relevant (depending on the application) if its score $\boldsymbol{w}^{\top}\boldsymbol{x}$ is above a threshold t. Multiple problem categories belong to this framework:

Linear Classification at the Top

Non-Linear Classification at the Top

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- [2] Shivani Agarwal. The infinite push: A new support vector ranking algorithm that directly optimizes accuracy at the absolute top of the list. In *Proceedings of the 2011 SIAM International Conference on Data Mining*, pages 839–850. SIAM, 2011.