



**FACULTY
OF MATHEMATICS
AND PHYSICS**
Charles University

MASTER THESIS

Ladislav Maleček

Fairness in group recommender systems

Department of Software Engineering

Supervisor of the master thesis: Mgr. Ladislav Peška, Ph.D.

Study programme: Computer Science

Study branch: Artificial Intelligence

Prague 2021

I declare that I carried out this master thesis independently, and only with the cited sources, literature and other professional sources. It has not been used to obtain another or the same degree.

I understand that my work relates to the rights and obligations under the Act No. 121/2000 Sb., the Copyright Act, as amended, in particular the fact that the Charles University has the right to conclude a license agreement on the use of this work as a school work pursuant to Section 60 subsection 1 of the Copyright Act.

In date
Author's signature

Dedication.

Title: Fairness in group recommender systems

Author: Ladislav Maleček

Department: Department of Software Engineering

Supervisor: Mgr. Ladislav Peška, Ph.D., Department of Software Engineering

Abstract: red)Abstract.

Keywords:

Contents

Introduction	3
1 Recommender systems	4
1.1 Group recommender systems	4
1.2 Title of the second subchapter of the first chapter	4
2 Fairness	5
2.1 General	5
2.2 Long-term fairness	5
2.3 Evaluation	5
3 Related work	6
3.1 Aggregating member preferences	6
3.2 Aggregation methods	6
3.3 Direct model methods	6
4 Datasets	7
4.1 Main datasets	7
4.2 Group datasets	7
4.3 Creating of artificial groups	7
5 Our work	8
5.1 EP-FuzzyD'Hondt	8
6 Offline experiments	9
6.1 Our work	9
6.2 Proceedings	9
7 Application	10
7.1 Design requirements	10
7.2 Architecture and design choices	10
7.3 Cold start problem	10
7.4 User manual	10
8 User study	11
8.1 Methodology	11
8.2 Results	11
8.3 Discussion	11
9 Conclusion	12
Conclusion	13
Bibliography	14
List of Figures	15

Introduction

Introduction

Problem statement

Research objective

Thesis structure

1. Recommender systems

1.1 Group recommender systems

1.2 Title of the second subchapter of the first chapter

2. Fairness

2.1 General

2.2 Long-term fairness

2.3 Evaluation

3. Related work

3.1 Aggregating member preferences

3.2 Aggregation methods

3.3 Direct model methods

4. Datasets

4.1 Main datasets

4.2 Group datasets

4.3 Creating of artificial groups

5. Our work

5.1 EP-FuzzyD'Hondt

6. Offline experiments

6.1 Our work

6.2 Proceedings

7. Application

7.1 Design requirements

7.2 Architecture and design choices

7.3 Cold start problem

7.4 User manual

8. User study

8.1 Methodology

8.2 Results

8.3 Discussion

9. Conclusion

Future work

Bibliography

List of Figures

List of Tables