Alessandro B. Melchiorre

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Experience

Graduate Researcher
Johannes Kepler Universität Linz
September 2019 - Ongoing — Linz, AT
Research focus on Recommender Systems, Explainable and Fair AI/ML.
- **Developed** a novel effective recommendation algorithm and a tool to offer explainable predictions and model's insights.
- **Devised** a new approach for modular debiasing of latent embeddings of pre-trained ML recommendation models.
- **Led** 2 funded science-communication projects that resulted in interactive exhibits for thousands of people.

Visiting Student
Technische Universität Berlin
September 2018 - February 2019 — Berlin, DE
- **Awarded** 1 of 12 departmental merit-based scholarships
- **Developed** a SQL query resolution system for Geo-distributed federated databases while enforcing data shipment constraints. Implemented in Java and Apache Calcite.

Selected Publications

Full list is available at karapostk.github.io/publications
- A. B. Melchiorre, S. Masoudian, D. Kumar, M. Schedl, **Modular Debiasing of Latent User Representations in Prototype-based Recommender Systems**, *Paper at European Conference on Machine Learning (ECML PKDD) 2024*
- A. B. Melchiorre, C. Ganhör, N. Rekabsaz, M. Schedl, **ProtoMF: Prototype-based Matrix Factorization for Effective and Explainable Recommendations**, *Paper at ACM Conference on Recommender Systems (RecSys) 2022*
- D. Afchar*, A. B. Melchiorre*, M. Schedl, R. Hennequin, E. V. Epure, M. Moussallam, **Explainability in Music Recommender Systems**, *Article in AI Magazine 2022* - Deezer Collaboration
- A. B. Melchiorre, N. Rekabsaz, E. Parada-Cabaleiro, S. Brandl, O. Lesota, M. Schedl, **Investigating Gender Fairness of Recommendation Algorithms in the Music Domain**, *Journal in Information Processing & Management 2021*
- A. B. Melchiorre*, V. Praher*, M. Schedl, G. Widmer, **LEMONS: Listenable Explanations for Music recOmmeNder Systems**, *Demo Paper at European Conference on Information Retrieval (ECIR) 2021*

Selected Projects

- **Hassaku**: Recommender System framework in Python/PyTorch. Implements all ML steps from data processing to logging.
- **ProtoMF**: Explainable and effective recommendation algorithm based on interpretable user/item prototypes.

Referees

Prof. Markus Schedl (supervisor)
Johannes Kepler University Linz
Full Professor
markus.schedl@jku.at

Navid Rekabsaz (ex-colleague)
Thomson Reuters AI Labs
Senior Applied ML Scientist
navid.rekabsaz@gmail.com

Summary

Machine Learning researcher with a Computer Science background. I enjoy carefully developing each project aspect, from data processing to model predictions, to deliver effective and well-structured solutions on time.

Skills

Programming Languages
Python, SQL, Java (Proficient)
C/C++, JavaScript (Familiar)

Software
PyTorch, NumPy, pandas, Ray Tune, scikit-learn, matplotlib, git, Jupyter, Weight&Biases, bash
Spark, Keras, TensorFlow, Hadoop, Kafka, Apache Calcite (Previous Experience)

Languages
Italian (Native), English (Fluent), German (Beginner)

Funded Projects

See karapostk.github.io/projects for more info

Black Holes of Popularity
PI role — 62.000 EUR
February 2022 - September 2022 — 11 people
Project coordination and planning, recruiting, role assignments, and fostering ideas and contributions.

Emotion-aware Music Tower Blocks
Co-PI role — 54.000 EUR
February 2021 - September 2021 — 9 people
System design, data analysis, tasks assignment, API integration development. In Python and JavaScript.

Education

PhD in Computer Science/AI
Johannes Kepler Universität Linz
September 2019 - Ongoing (Expected End 2024) — Linz, AT
Focus on developing and designing (music) recommender systems, with emphasis on explainability and fairness.

MSc in Engineering in Computer Science
Sapienza Università di Roma
September 2016 - February 2019 — Rome, IT
Graduated with honors.
Machine Learning (Python, TensorFlow), Big Data (Hadoop, Spark), Natural Language Processing

BSc in Engineering in Computer Science
Università degli Studi di Napoli Federico II
September 2013 - June 2016 — Naples, IT
Graduated with honors.
Software Engineering (UML, Design, Analysis, Testing), Computer Programming (C, C++, Java), Databases (SQL, DBMS)