User Perspectives in Fair Recommender Systems: A Paradigm Shift

Keynote Abstract

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Abstract

The landscape of recommender systems has experienced a transformative shift in recent years, fueled by the urgent need to address the ethical challenges surrounding algorithmic biases and the quest for fairness [1, 2, 3, 4, 5]. In this talk, we delve into the central role of user perspectives, recognizing their significance as key drivers for constructing fair recommendation algorithms [6]. Through real-world case studies, we first unveil the profound impact of biased recommendations on individuals, communities, and society at large [7]. We expose the potential consequences of these biases, shedding a light on the necessity for change [8, 9, 10]. With this critical backdrop in mind, we showcase and discuss recent techniques that, by embracing user perspectives, can lead to more inclusive and representative recommender systems, thereby fostering trust and engagement among users [11, 12, 13].

Keywords

Beyond Accuracy, Ethics, Fairness, Recommendation, User Modeling.

Biography

Mirko Marras is Assistant Professor at the Department of Mathematics and Computer Science of the University of Cagliari (Italy), where he co-leads the research unit on responsible machine learning. Prior to that, he has been postdoctoral researcher at EPFL (Switzerland) and visiting scholar at Eurecat (Spain) and New York University (USA). His research ranges across various domains impacted by user modeling and personalization, including education, entertainment, and healthcare. He has co-authored more than 60 papers in top-tier conferences and journals and has given tutorials at ICDE 2021, ECIR 2021, WSDM 2021, ICDM 2020, and UMAP 2020. He has also co-chaired several workshops on this theme, including the Bias series at ECIR (2020-2023), the L2D workshop at WSDM 2021, the R&PRMI workshop at ICCV 2021, the FATED workshop at EDM 2022, and the RKDE workshop at ECML-PKDD 2023. He serves as associate editor for the Springer's Journal of Ambient Intelligence and Humanized Computing.

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References

- [1] F. Ricci, L. Rokach, B. Shapira, Recommender systems: Techniques, applications, and challenges, in: Recommender Systems Handbook, Springer, 2022, pp. 1–35. doi:10.1007/978-1-0716-2197-4_1.
- [2] M. Abdelrazek, E. Purificato, L. Boratto, E. W. De Luca, Fairup: A framework for fairness analysis of graph neural network-based user profiling models, in: Proc. of the 46th International ACM SIGIR Conference on Research and Development in Information Retrieval, ACM, 2023, p. 3165–3169. doi:10.1145/3539618.3591814.
- [3] G. Fenu, H. Lafhouli, M. Marras, Exploring algorithmic fairness in deep speaker verification, in: Proc. of the 20th International Conference on Computational Science and Its Applications, volume 12252, Springer, 2020, pp. 77–93. doi:10.1007/978-3-030-58811-3\ 6.
- [4] Y. Wang, W. Ma, M. Zhang, Y. Liu, S. Ma, A survey on the fairness of recommender systems, ACM Trans. Inf. Syst. 41 (2023) 52:1–52:43. doi:10.1145/3547333.
- [5] G. Fenu, R. Galici, M. Marras, Experts' view on challenges and needs for fairness in artificial intelligence for education, in: Proc. of the 23rd International Conference on Artificial Intelligence in Education, volume 13355, Springer, 2022, pp. 243–255. doi:10.1007/978-3-031-11644-5_20.
- [6] E. Zangerle, C. Bauer, Evaluating recommender systems: Survey and framework, ACM Comput. Surv. 55 (2023) 170:1–170:38. doi:10.1145/3556536.
- [7] J. Chen, H. Dong, X. Wang, F. Feng, M. Wang, X. He, Bias and debias in recommender system: A survey and future directions, ACM Trans. Inf. Syst. 41 (2023) 67:1–67:39. doi:10.1145/3564284.
- [8] K. Orphanou, J. Otterbacher, S. Kleanthous, K. Batsuren, F. Giunchiglia, V. Bogina, A. Shulner-Tal, A. Hartman, T. Kuflik, Mitigating bias in algorithmic systems A fish-eye view, ACM Comput. Surv. 55 (2023) 87:1–87:37. doi:10.1145/3527152.
- [9] E. Purificato, L. Boratto, E. W. De Luca, Do graph neural networks build fair user models? assessing disparate impact and mistreatment in behavioural user profiling, in: Proc. of the 31st ACM International Conference on Information & Knowledge Management, ACM, 2022, p. 4399–4403. doi:10.1145/3511808.3557584.
- [10] E. Purificato, L. Boratto, E. W. De Luca, Tutorial on user profiling with graph neural networks and related beyond-accuracy perspectives, in: Proc. of the 31st ACM Conference on User Modeling, Adaptation and Personalization, ACM, New York, NY, USA, 2023, p. 309–312. doi:10.1145/3565472.3595616.
- [11] L. Boratto, G. Fenu, M. Marras, G. Medda, Practical perspectives of consumer fairness in recommendation, Inf. Proc. Man. 60 (2023) 103208. doi:10.1016/j.ipm.2022.103208.
- [12] G. Balloccu, L. Boratto, G. Fenu, M. Marras, Post processing recommender systems with knowledge graphs for recency, popularity, and diversity of explanations, in: Proc. of the 45th International ACM SIGIR Conference on Research and Development in Information Retrieval, ACM, 2022, pp. 646–656. doi:10.1145/3477495.3532041.
- [13] G. Balloccu, L. Boratto, C. Cancedda, G. Fenu, M. Marras, Knowledge is power, understanding is impact: Utility and beyond goals, explanation quality, and fairness in path reasoning recommendation, in: Proc. of the 45th European Conference on Information Retrieval, volume 13982, Springer, 2023, pp. 3–19. doi:10.1007/978-3-031-28241-6_1.