

# Seminar Topics and Projects

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# Topic 1: Team Project (Master): Adaptation to changing rating scale

- Collaborative filtering RS rely on ratings from users
- Rating scale can change over time
  - originally 1-5 stars
  - later 2-4 stars
- Implementation of an adaptation mechanism for matrix factorization
- Experience in Java and RS necessary
- For 2 team members



## Topic 2: Seminar × 3 (Bachelor): Recommender Systems

- Introductory topics in recommender systems
- 3 topics related to **Big Data** and distributed processing with **Hadoop**
  - collaborative filtering
  - content-based recommenders
  - matrix factorization
- How can those methods be distributed?
- Short survey on one of the topics + distribution with Hadoop
- Background on recommender systems beneficial



## Topic 3: Seminar (Master): Recommender Systems

- Literature survey on **deep learning** in recommender systems
- How is deep learning used for recommendations?
- What types of methods are used?
- Background in recommender systems necessary
- Starting point - e.g.<sup>1</sup>

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<sup>1</sup>Ruslan Salakhutdinov, Andriy Mnih und Geoffrey Hinton. "Restricted Boltzmann machines for collaborative filtering". In: *Proceedings of the 24th international conference on Machine learning*. ACM. 2007, S. 791–798.



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Good Luck!

