Problem Motivation and MIG-DPG Solutions

Existing Methods: Limitations

- Lack explicit preference alignment
- Black-box recommendation without explanations
- Suboptimal multimodal fusion strategies
- Implicit feedback may not reflect true preferences
- Complex reward modeling in traditional RLHF
- Limited interpretability and transparency

MIG-DPG Solution

MIG-DPG: Our Solutions

- Direct Preference Optimization (DPO)
- Transformer-based explanation generation
- Modal-independent processing + attention fusion
- Explicit preference modeling from triplets
- Single-stage training without reward modeling
- Joint optimization for accuracy + interpretability

Core Contributions

First DPO adaptation to multimodal recommendations • Joint training for accuracy + interpretability • Theoretical convergence guarantees