

Recommender Systems: Past, Present, and Future

Before “Recommender Systems”

- Manual Personalization
- Cross-Sales and Early Product Associations
- Product Search

The Early Days

- 1992-1996
 - Research: GroupLens, RINGO, Video Recommender, and more
 - Industry Developments: Amazon and Beyond
 - Early Commercialization: Agents, Inc., Net Perceptions, and many more ...
 - Mix of Business Excitement and Altruistic Dreams

The Tech Bubble and the Burst

- Recommendation as key technology ...
- And then, Recommendation in Context

Wave Two: The Netflix Prize

- New Excitement in Recommender Systems
 - Netflix \$1,000,000 prize
 - Recommendation as an application area for data mining, machine learning
 - Rapid Growth in the Field
- New Techniques
 - Algorithm Stacking
 - New Matrix Factorization Techniques

Mature Realizations

- Prediction and Basic Top-N Algorithms Limited
 - Magic barriers
 - Value of Recommendation
 - Context, Content, much more ...

State of the Field Today

- Algorithms Well-Known
- Effective Recommendation Still a Craft
 - Exploring Data
 - Understanding Usage Cases and Value Proposition
- Still Largely Focused on Business Applications
 - Immense Creativity
 - Dream of Consumer-Owned not Realized

Looking Forward

- Many Hard Problems Unsolved
 - Temporal Recommendation
 - Recommendations for Education
 - Low-Frequency, High-Stakes Recommendations
- Recognized Specialty that Brings Together
 - Machine Learning / Data Mining
 - Business / Marketing
 - Human-Computer Interaction / Understanding Consumers

Promising Directions

- Context, Context, Context ...
- Sequences of all types
 - Music
 - Education
- Lifetime Value
 - Includes exploit vs. explore ...

Recommender Systems: Past, Present, and Future