



NUS-Tsinghua Centre for Extreme Search
A Joint Research Collaboration Between NUS & Tsinghua University

Explainable Recommendation by Leveraging Rich Attributes

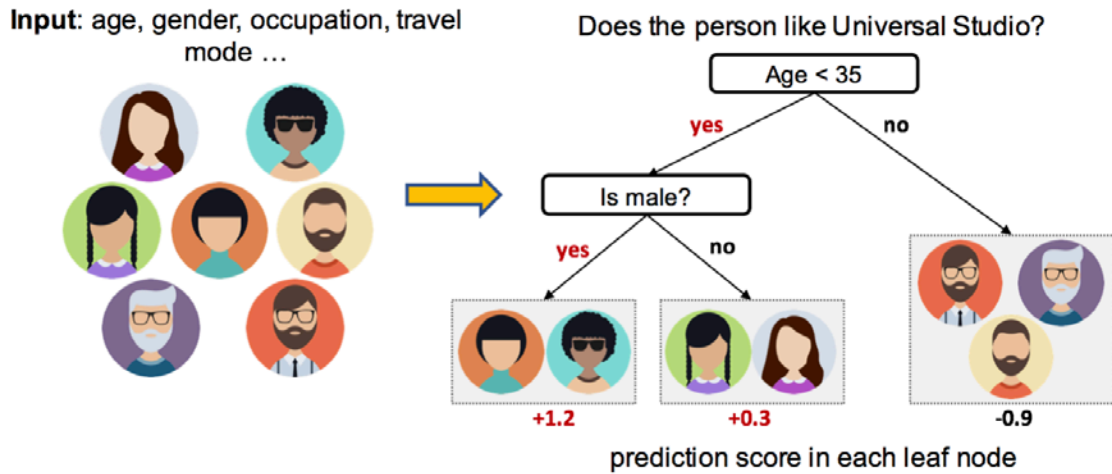
Sep 26th, 2017

Xiang Wang

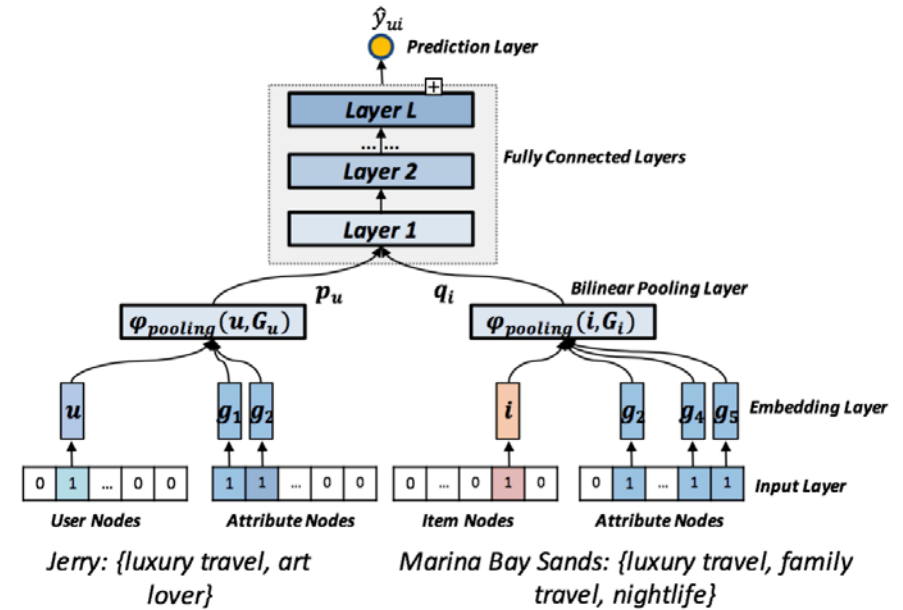
National University of Singapore

Explainable + Expressive in Recommendations

- Tree-based models are easily explainable, but they have limited representation power.



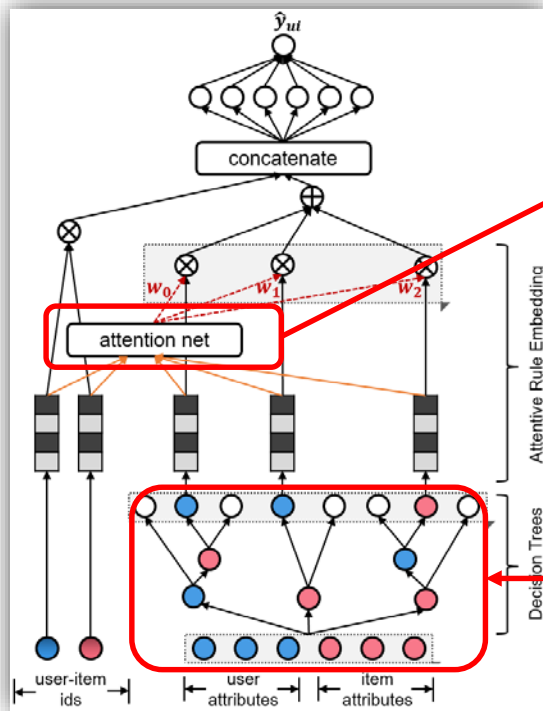
- Neural recommendation methods (e.g., NCF and NFM) operate as a black-box, very expressive yet hardly understood by end users.



How to achieve **Explainable + Expressive**?

Explainable Recommendation by Leveraging Rich Attributes

- Learning explainable rules from decision trees, and selecting sound rules for explaining user-item interactions via attention.

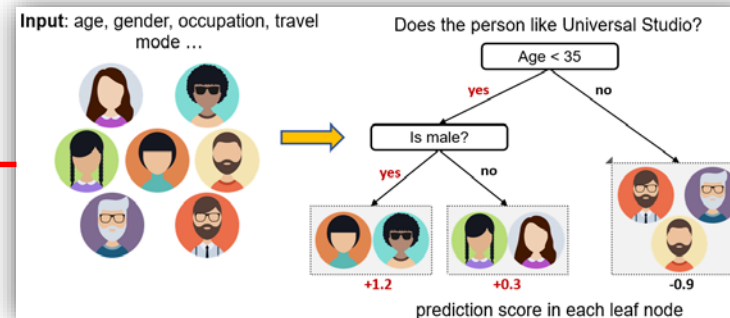


Provide sound & explainable reasons (rules) on why the product is suitable choice for the user.



Reasons for Recommending The River Café:

User being **<User-City: Florida, User-Style: Nightlife Seeker Luxury Traveler, User-Age: 50-64>** would like to visit **Item** being **<Item-Price: \$\$\$\$, Item-Attr: Foie Gras, Lobster>**



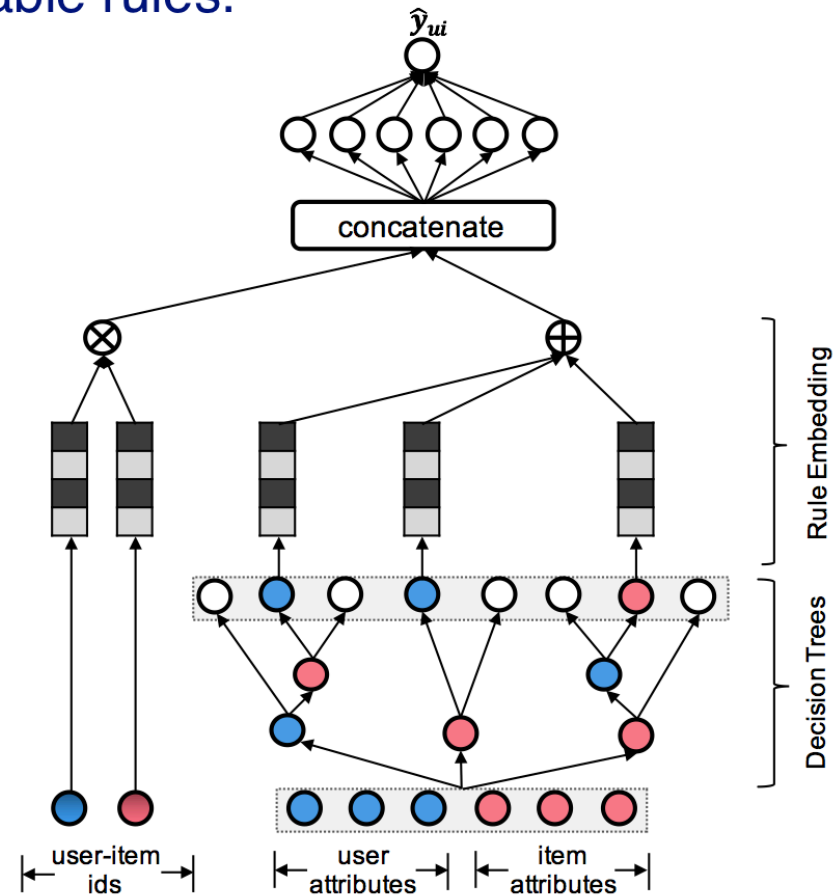


NUS-Tsinghua Centre for Extreme Search
A Joint Research Collaboration Between NUS & Tsinghua University

THANK YOU

NExT research is supported by the National Research Foundation,
Prime Minister's Office, Singapore under its IRC@SG Funding Initiative.

- We first leverage decision trees to extract several explainable rules.



- We then employ an attention net on user-item & rule interactions.

