1163-05-1269 **Paul Bruillard*** (`pbruillard@expedia.com`), 1111 Expedia Group Way W, Seattle, WA 98119.
A Survey of Ranking and Recommendation Systems.

Online search engines and market places have shown the importance of ranking systems. From Netflix, to Google, to Amazon, providers that are able to offer the best and most expedient recommendations to customers are able to improve their market share and increase customer loyalty. This arguably began with PageRank, and its success allowed Google to dominate the search engine marketplace. Often these ranking problems are most readily expressed combinatorially, but not as a smooth loss function for conventional optimization schemes. Thus it is common for proxy loss functions to be derived or problem relaxations to be considered. Furthermore, in many cases the optimal ordering for a customer is at odd with the optimal ordering for a business. This is particularly pronounced in two-sided market places. In this talk we will review ranking problems faced by industry, with a focus on problems arising in online travel agencies. We will discuss how the optimization problems are formulated and tackled in real world settings and highlight differences between the optimization problem being solved and the optimal problem. Time permitting we will touch on problems related to customer personalization and ranking inconsistencies that arise in two-sided market places. (Received September 15, 2020)