

COMPATIBILITY FOR ELECTRONIC RECOMMENDER SYSTEMS

An Undergraduate Research Scholars Thesis

by

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Compatibility for Electronic Recommender Systems

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Recommending new items to users is an increasingly important research topic and recommender systems are used extensively in different applications varying across domains to recommend items from books to music. e-Commerce systems such as Amazon and Netflix depend on recommender systems to increase their profits by recommending products the consumers are interested in against other products.

Current recommender systems recommend items based on two factors: user and items. For example, if a user buys a certain product, then the recommendation system will recommend similar products or products you have already purchased. For certain categories, the focus of compatibility relationship between products should be analyzed and used to recommend products to offer a complementary product, not just a similar product.

Our research proposes that compatibility can provide more accurate recommendations versus traditional recommender systems. This is especially true for electronics, so we will focus our research on electronics initially, and given time, we will progress to other categories. Through compatibility recommender systems, we will define compatibility for

electronics, create a model to identify compatible products in electronics, analyze large product datasets and their relationships, and create a method to provide analytics for our results with recommender systems. Furthermore, our research differs from current market recommendation systems in that we will propose a recommendation system focused on compatibility and efficiency of the systems to provide user results.

Our overall challenge after we have created a new definition of compatibility is to analyze features that give us information about compatibility. This information includes text information, such as descriptions and product names, and image data. Another challenge is we must consider specific distinguishing features such as brand names. Next, we will find relationships between features that will give an appropriate compatible recommendation from our existing definition compared with existing recommendation that utilizes similar substitution methods.