



THE  
INNOVATION  
GROUP

# Guest Experience: Machine Learning Meets the Satisfaction Survey

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# Agenda

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- What is Machine Learning?
- Case Study: The Projector I'm Using Right Now
- “Smart” Analysis of Guest Survey Data



# What is Machine Learning?

*Machine Learning at its most basic is the practice of using algorithms to parse data, learn from it, and then make a determination or prediction about something in the world. – Nvidia*

## Two Problems Solved by Machine Learning

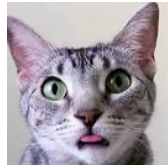
- Classification/Regression



cat



cat



cat



giraffe



giraffe



???

- Clustering (Segmentation) – relevant to direct marketing
- Topic Modeling (today's topic) is a classification problem



# Case Study: This Projector

## Specifications

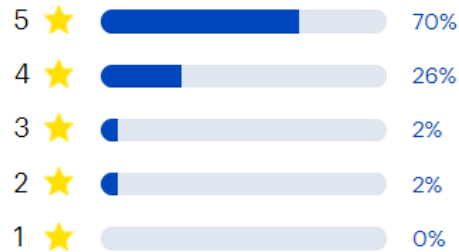
## Ratings & Reviews

Customer rating

# 4.7



(58 Reviews)



would recommend to a friend

[See all customer reviews](#) | [Write a review](#)

## Pros

[Picture quality \(32\)](#)

**Ease of use (22)**

[Price \(21\)](#)

[Set up \(12\)](#)

[Portable \(7\)](#)

"Very **intuitive** controls."

-ESBlfeld

[See all reviews that mention "ease of use" as a pro >](#)

## Cons

**Cord (2)**

[Speakers \(2\)](#)

[Hdmi \(2\)](#)

"The projector came with a VGA **cord** but missed having an HDMI which is the **cord** most people needs nowadays."

-RiyaB

[See all reviews that mention "cord" as a con >](#)



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See all reviews that mention "**cord**" as a con >

1. Use training reviews of projectors to **define set of topics**
2. Build a **learner to identify topics** in reviews (e.g., "intuitive" above)
3. Use star ratings to classify topics into "**pros**" vs "**cons**"

*Optionally, can begin to look at parts of reviews, not just the whole review:*

4. Use **sentiment analysis** and star rating combined to characterize positive and negative reviews
5. Assign **topic weights** to reviews: 25% ease of use, 50% speakers, 25% cord



# Same Steps

1. Use training reviews of ~~projectors~~ guest surveys to **define set of topics**  
For example: slots, tables, beverage, valet, buffet, hotel, spa
2. Build a **learner to identify topics** in reviews
3. Use star ratings to classify topics into “**pros**” vs “**cons**”

*Optionally, can begin to look at parts of reviews, not just the whole review:*

4. Use **sentiment analysis** and star rating combined to characterize positive and negative reviews
5. Assign **topic weights** to reviews.
6. **Quantify the impact** of a topic +/- free response on overall satisfaction



# What you can learn

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- How much weight free response topics have on overall satisfaction (+/-)
- Root cause analysis (take all the “slots” reviews, find subtopics, repeat)
- Implications on guest service and best uses of CapEx