ML Interview Practice

Job posting link to Notes to Reviewer

Pdf submission

1. We A/B tested two styles for a sign-up button on our company's product page. **100** visitors viewed page **A**, out of which **20** clicked on the button; whereas, **70** visitors viewed page **B**, and only **15** of them clicked on the button. Can you confidently say that page **A** is a better choice, or page **B**? Why?
2. Can you devise a scheme to group Twitter users by looking only at their tweets? No demographic, geographic or other identifying information is available to you, just the messages they’ve posted, in plain text, and a timestamp for each message.

In JSON format, they look like this:

|  |
| --- |
| {  "user\_id": 3,  "timestamp": "2016-03-22\_11-31-20",  "tweet": "It's #dinner-time!"  } |

Assuming you have a stream of these tweets coming in, describe the process of collecting and analyzing them, what transformations/algorithms you would apply, how you would train and test your model, and present the results.

1. In a classification setting, given a dataset of labeled examples and a machine learning model you're trying to fit, describe a strategy to detect and prevent overfitting.
2. Your team is designing the next generation user experience for your flagship 3D modeling tool. Specifically, you have been tasked with implementing a smart context menu that learns from a modeler’s usage of menu options and shows the ones that would be most beneficial. E.g. I often use **Edit** > **Surface** > **Smooth Surface**, and wish I could just right click and there would be a **Smooth Surface** option just like **Cut**, **Copy** and **Paste**. Note that not all commands make sense in all contexts, for instance I need to have a surface selected to smooth it. How would you go about designing a learning system/agent to enable this behavior?
3. Give an example of a situation where regularization is necessary for learning a good model. How about one where regularization doesn't make sense?
4. Your neighborhood grocery store would like to give targeted coupons to its customers, ones that are likely to be useful to them. Given that you can access the purchase history of each customer and catalog of store items, how would you design a system that suggests which coupons they should be given? Can you measure how well the system is performing?
5. If you were hired for your machine learning position starting today, how do you see your role evolving over the next year? What are your long-term career goals, and how does this position help you achieve them?