Recommendation System using MMoE

By GPSV Team

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Abstract:

- In this project, we are attempting a multi-objective recommender system on a wide scale to suggest what video to watch next based on data from a video sharing platform (Tentatively Youtube or Vimeo).
- There are several real-world problems facing the system, including the existence of many overlapping ranking objectives, as well as unconscious selection biases in user reviews.
- We are going to test a number of soft-parameter sharing approaches such as Multi-gate Mixture-of-Experts to overcome these problems in order to optimise successfully for multiple rating/ranking objectives.
- We also plan to build a Wide and Deep model and demonstrate the same using a Web application.
- We plan to use metrics like accuracy, click-through rate, and other metrics that are relevant to recommendation systems.

Architecture (Proposed Design):

Deep Learning Model Architecture (MMoE):

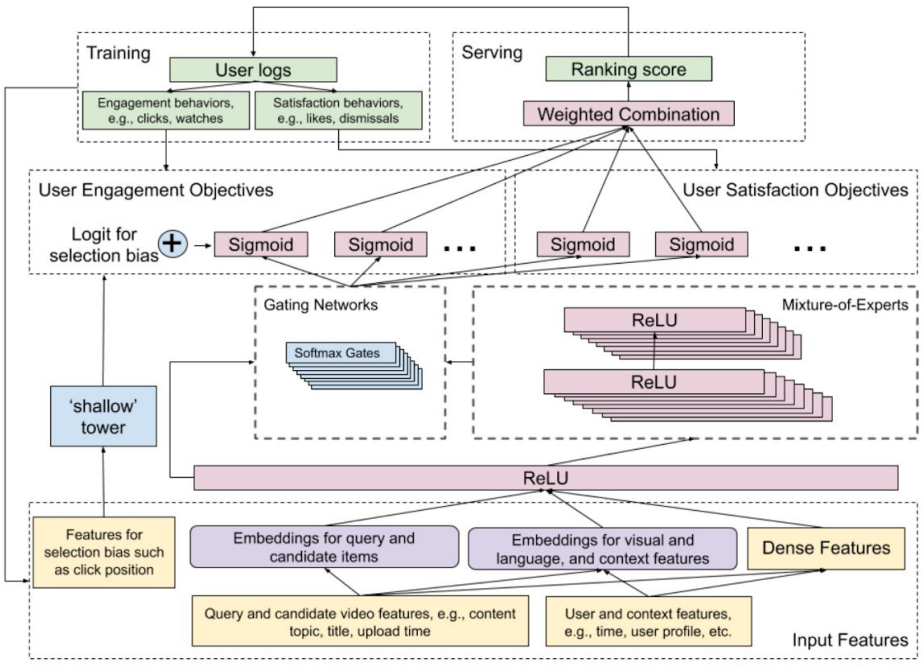

Figure 1: Our project model architecture. The training data will be the user logs, and will build Multi-gate Mixture-of-Experts layers.

Source: https://dl.acm.org/doi/10.1145/3298689.3346997

Roles and Responsibilities:

Following are the key milestones that we will be targeting as part of this project:

Milestones	**Timeline**
Data Gathering	2nd October 2020
Data Cleansing and Preprocessing	16th October 2020
Exploratory Data Analysis	23rd October 2020
Model Building	30th October 2020
Fine-tuning	6th November 2020
Web application development	27th November 2020
Web application testing	3rd December 2020
Application Deployment	4th December 2020
Final Presentation	7th December 2020

Key Deliverables:

- Web App
- Notebook
- Dataset