I was doing digital marketing analyst intern in International Rescue Committee this spring. One of the projects I finished is to use ML technique to decide the optimal proportion of budget should be allocated to each marketing platform (Facebook, Google ads, etc.).

After doing research, my idea is firstly determining what is the contribution of each marketing platform for each conversion (or called customer journey). An assumption I am using is for each customer journey, the customer is impressed by several ads from different platforms for several times. And then I can interpret the contribution weights as my optimal weights to allocate budget.

One way to do that will be applying LSTM with attention layer added.
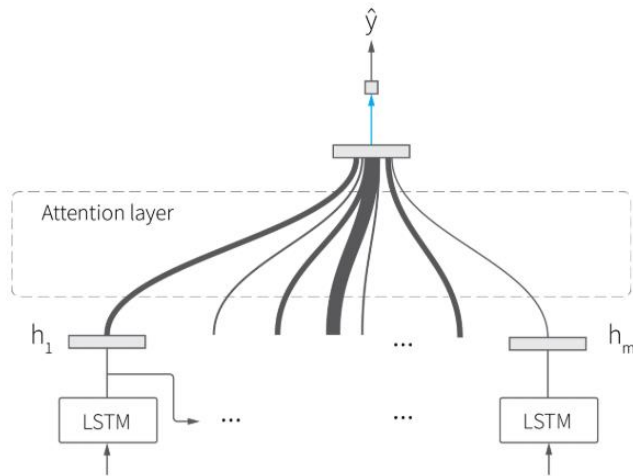
After processing the original data, each datapoint now represents a customer journey.
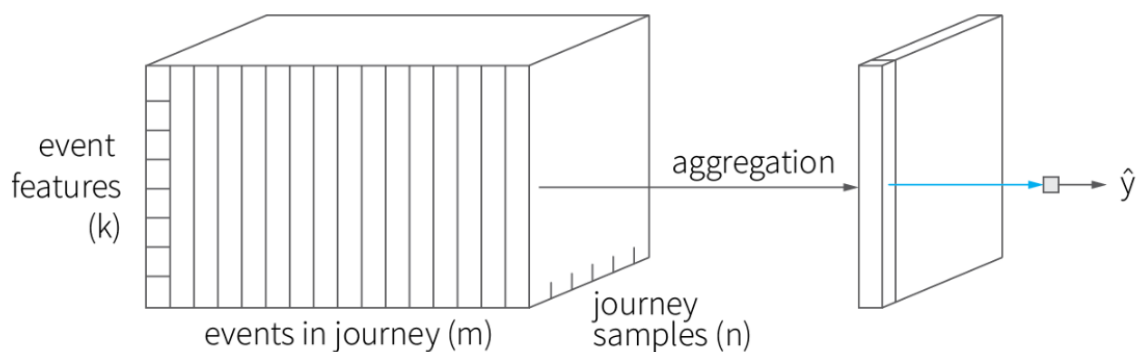
Then I trained the model with the datapoints.

k ~ 1500   m ~ 15   n ~ 100,000
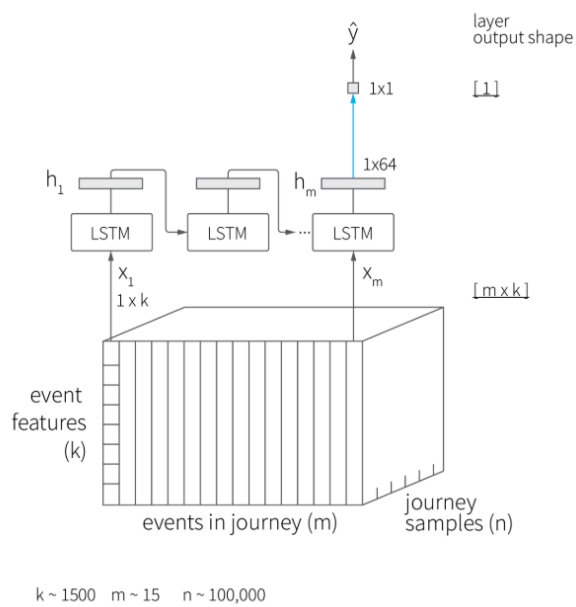
With attention layer added, I could get the contribution weights of each platform for each customer journey.

Apply the optimal budget allocation weights to test set data to validate.

It shows that by applying the weights achieved from the model, the conversion rate will increase by 5%.

I present the results to the board and hopefully the model will be adopted this year.