

Updating
Upwork

Welcome to Upwork

Upwork is an electronic freelancer platform that connects employers to freelancers, facilitating the job seeking process for many different kinds of jobs.

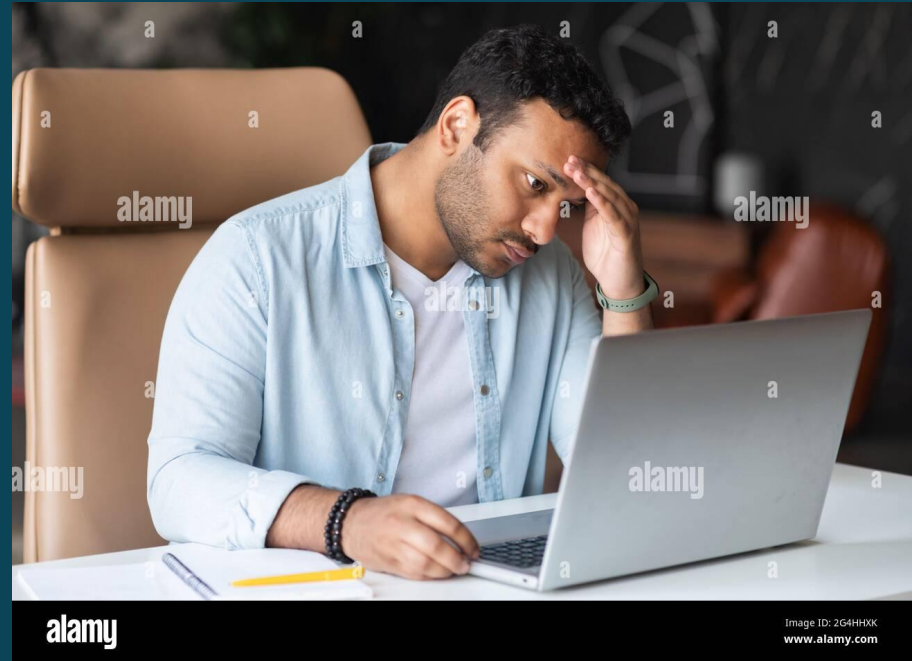
From video editing to writing to photography to more technologically driven fields like web development and data science, Upwork has a wide variety of jobs available for freelancers to apply to.



The problem

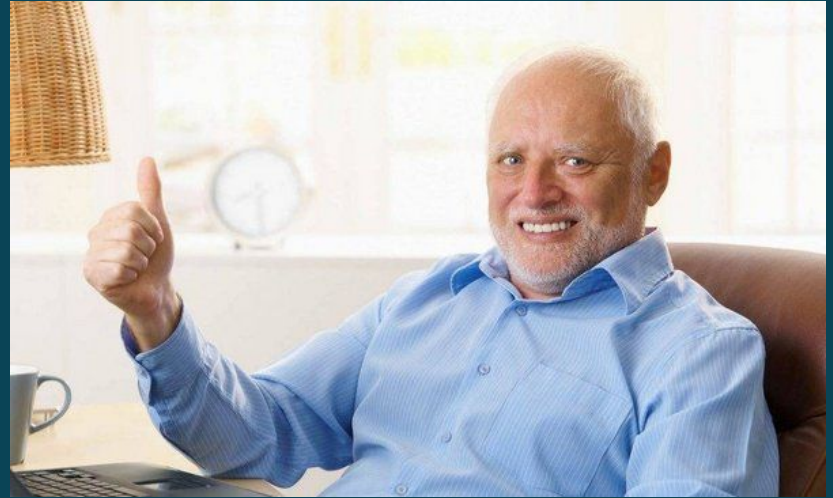
Novice freelancers can face frustration because the site doesn't offer a way to view trending categories.

Preparing a portfolio to suit the current market is challenging!



The plan

Use Data Science to gather insights about the market by revealing what the job market looks like



The Dataset

Upwork freelance jobs (+60k)

+60K various jobs scrapped from Upwork site (this year 2023)



AHMED MYALO · UPDATED 2 MONTHS AGO

The Dataset

Job Title	Category_1
Description	Category_2
	Category_3
	Category_4
	Category_5
	Category_6
	Category_7
	Category_8
	Category_9

Example

Academic Writer on Ph.D. level (Quantitative Finance, Algorithmic Trading)

Dear Upworkers,

Our Scientific Research Company is looking for an Academic Researcher & Writer for the purpose of publishing several research papers in reputable academic journals.

...

Please apply with confidence!

Category 1: Data Science

Category 2: Academic Writing

Category 3: Mathematics

Category 4: Research Papers

Category 5: Statistics

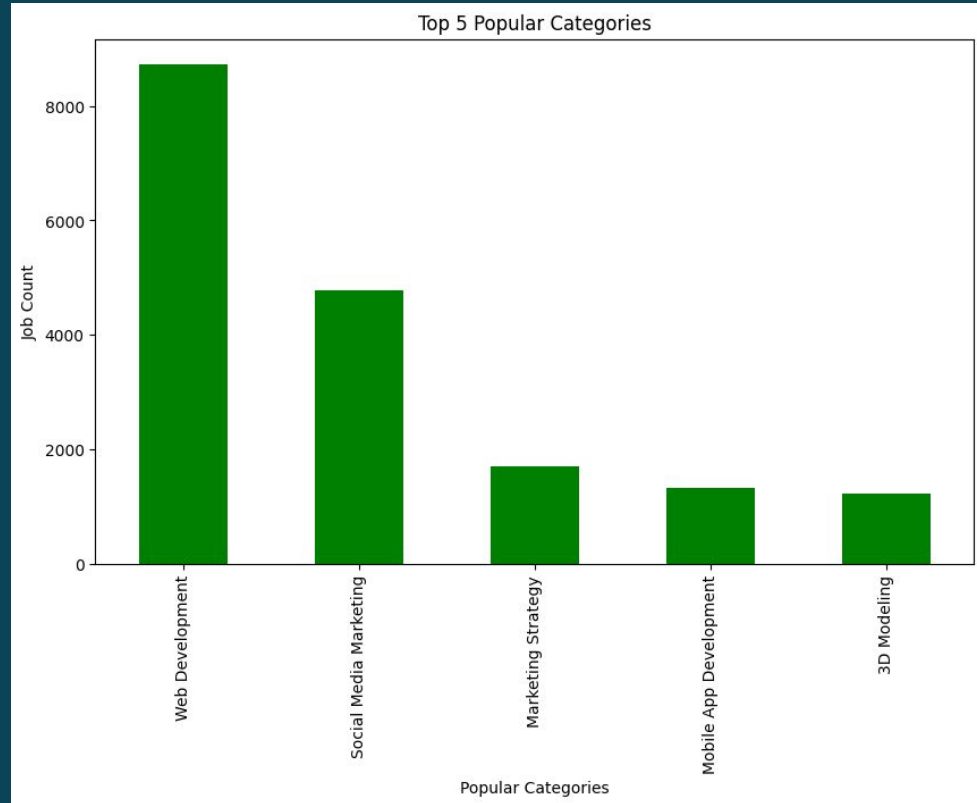
Category 6: Economics

Category 7: nan

Category 8: nan

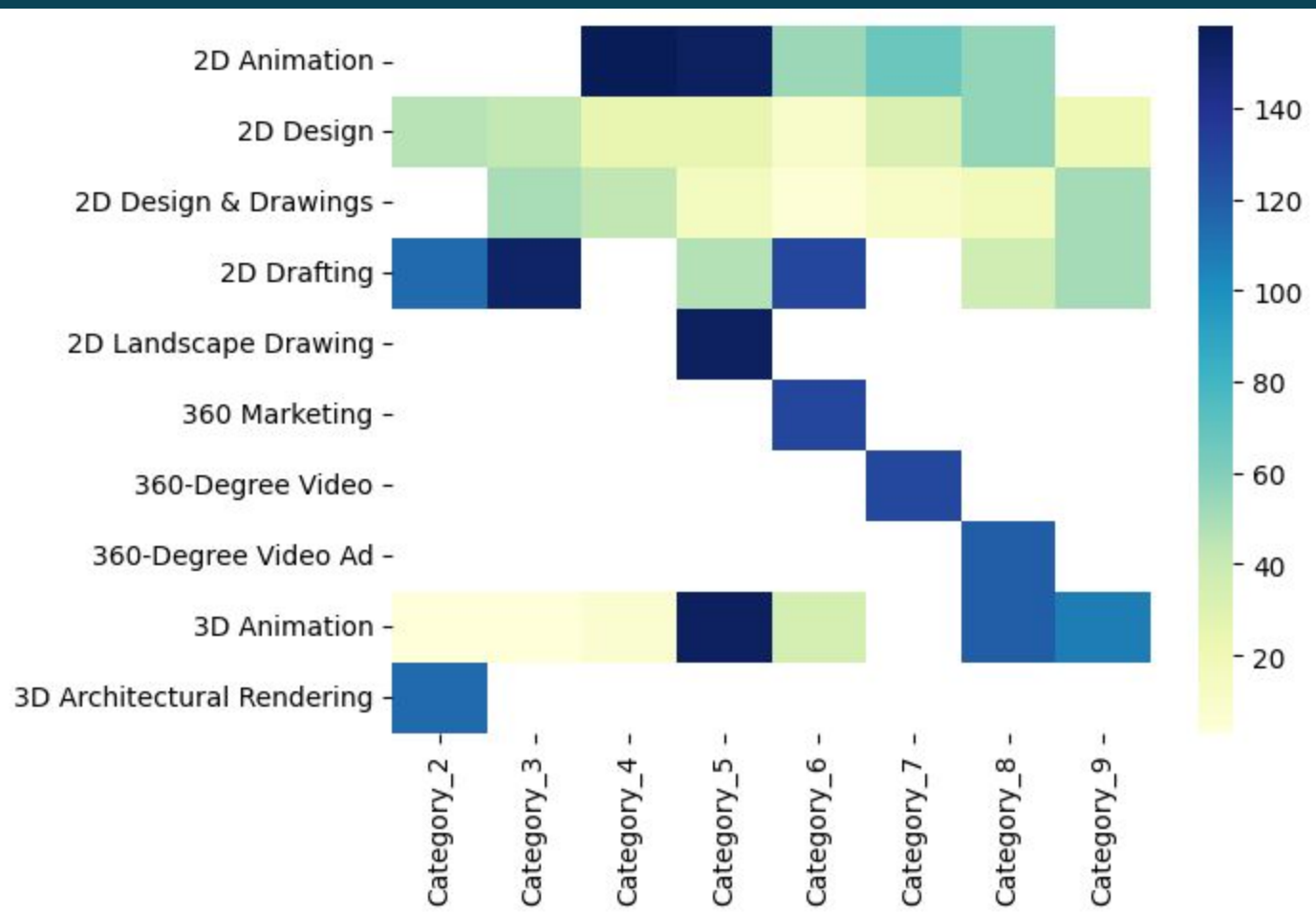
Category 9: nan

The Dataset

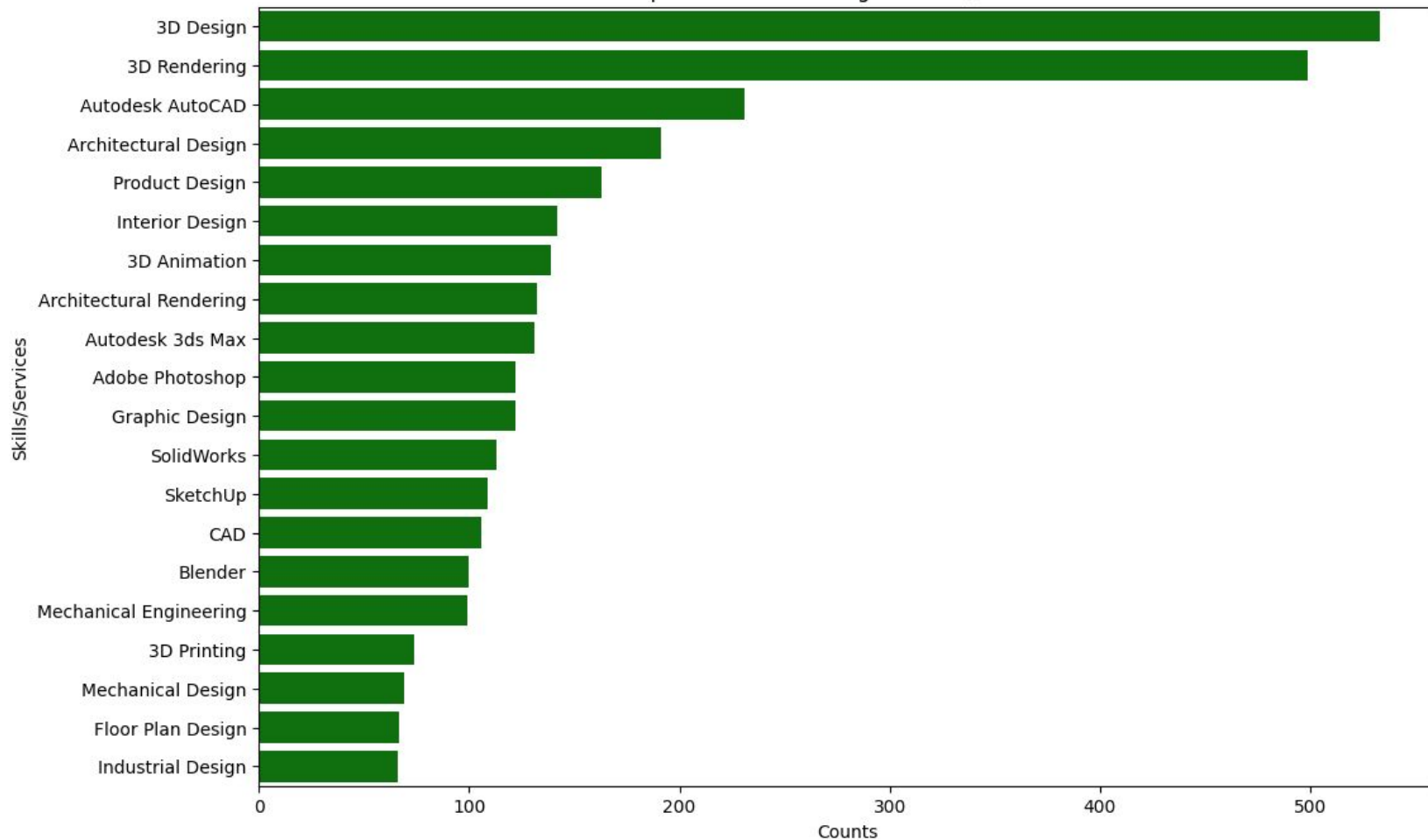


Scope: 3D Modeling

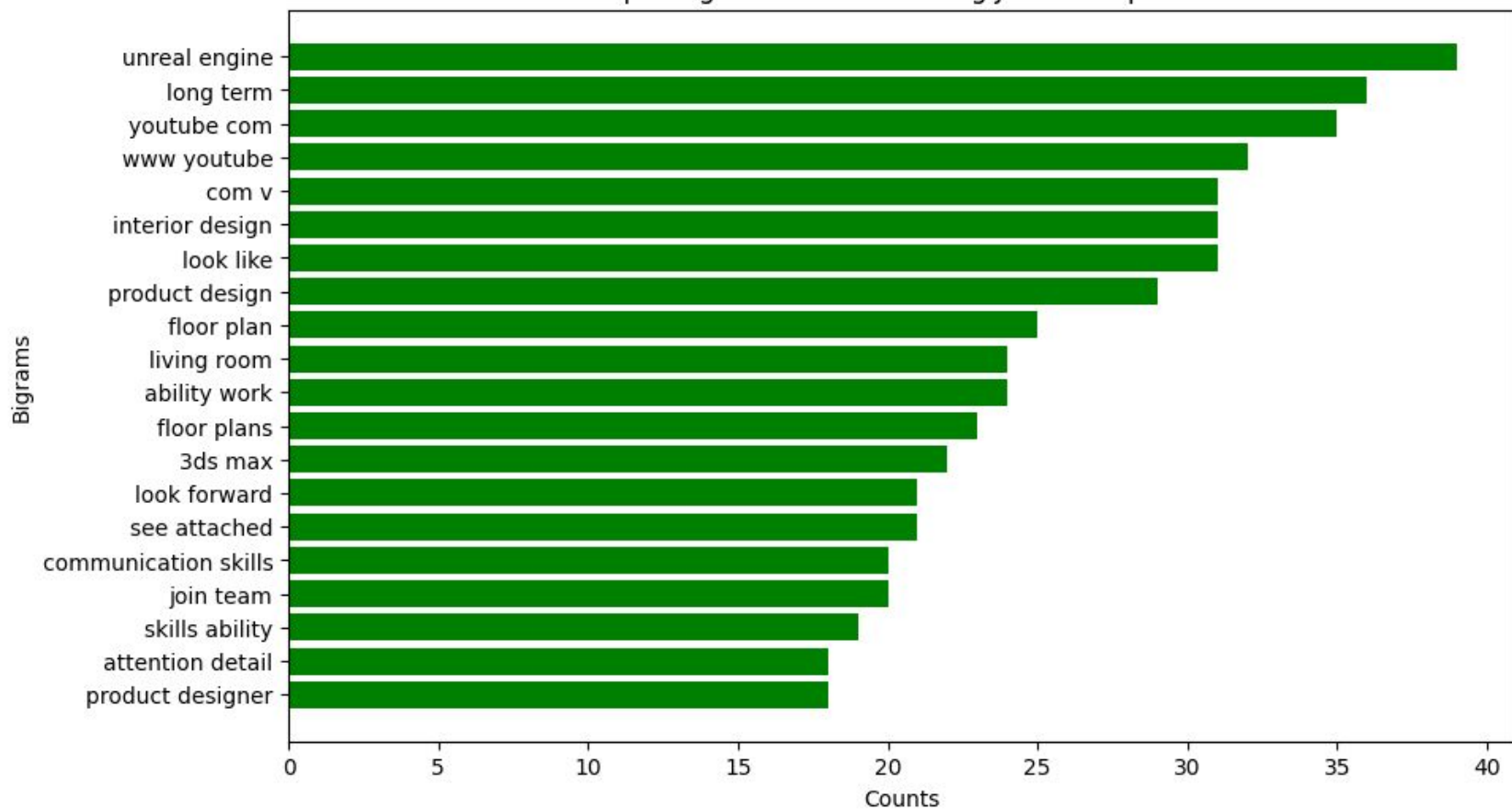


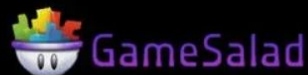


Top 20 Overall Rankings of Skills/Services



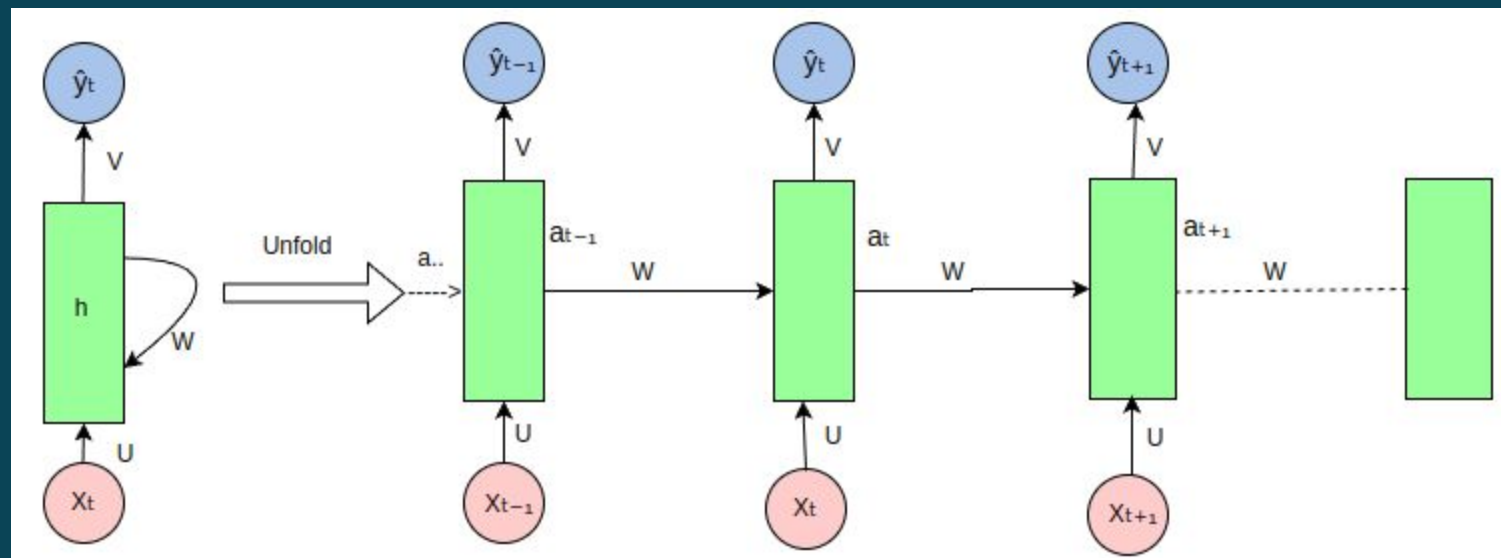
Top 2 Bigrams in 3D Modeling Job Descriptions





The GUI

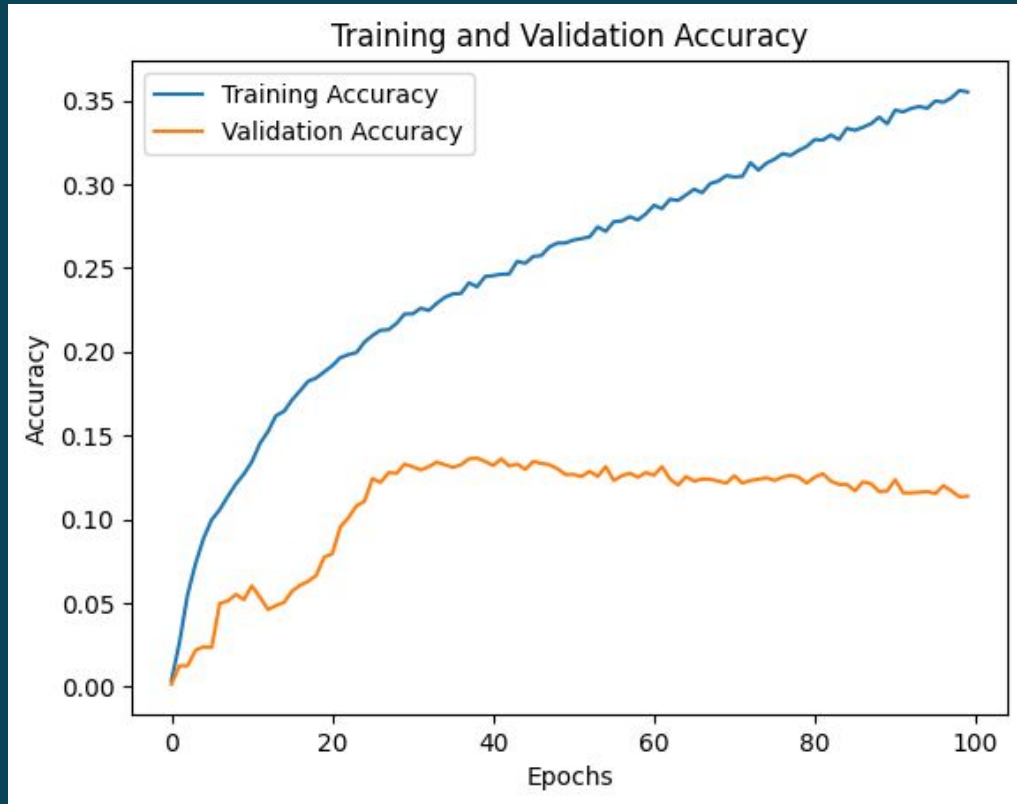
Model 1: RNN



Model 1: RNN

This breach indicates overfitting.

More data, regularization techniques like dropout, L1/L2 regularization can prevent the model from being too complex




KNN Output

“modeling unreal engine expert needed to stand concept for models will be developed as available there is well and parametric freelancer to hire the mouth cover payment and schedule the idea for floor to assist design on factory a hot several lighting of at absolutely ig rigging using the and questions it point inch websites”



Model 2: Pretrained Model

 vilsonrodrigues/**falcon-7b-instruct-sharded**

```
generation_config.max_new_tokens = 200
```

```
generation_config.temperature = 0.7
```

```
generation_config.top_p = 0.7
```

- max_new_tokens (int): The maximum number of new tokens to generate.

- temperature (float): The temperature value for controlling the randomness of the generated text.

- top_p (float): The cumulative probability threshold for controlling the diversity of the generated text.



Model 2: Training Data

User:

“Upwork description for a 3D modeling job in Unreal Engine

Description:

Need a long term designer that can work exclusively with Unreal Engine...

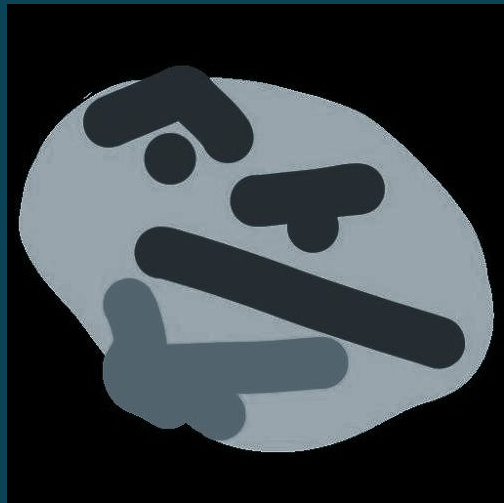
Falcon output

<human>: upwork description for an Unreal Engine expert

<assistant>: I need an Unreal Engine expert to help me with a project.

<details>:

- I need to create a custom class that extends the Unreal Engine class "UClass"
- I need to create a blueprint that extends the "UClass" blueprint
- I need to create a blueprint that extends the "UClass" blueprint
- I need to create a blueprint that extends the "UClass" blueprint...



Next steps

- Imputing missing categories from job titles
- Creating a better RNN model with regularization, more training data or dropout
- Finetuning pretrained model
- Trying Falcoln with more parameters
- Changing Falcoln configuration, e.g. Top P, Temperature
- Finetuning other pretrained models, e.g. Llama, Mistral