GPT rejection letters

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This project is about using GPT to write meaningful job rejection letters. The idea for the project came from an automated response from an application I did some time ago. The message was nice, and it was nice to receive something - but the thing that struck me was that they apologized for the reply being impersonal. So I thought - **Hey, it should be possible to not only personalize, but also build feedback into the reply**. With a connection to GPT the ATS might start working for both sides.

TLDR

We have an (AI-generated) job description, an (AI-generated) CV. We run a function and we receive a rejection letter that specifies how the candidate might need to work on to improve their chances next time round. Integrated into a data workflow this would improve the engagement with prospective candidates (thus building a better talent pool for future hires), hopefully lead to improvement in candidate quality over time, and would add only a very limited cost to the operation of a recruiting system (limited to some processing power and covering GPT costs).

Sample job description

```python
with open ("sample_job.txt") as f:
    sample_job = f.readlines()

sample_job =' '.join(sample_job)

print(sample_job)
```

Job Description: Junior Data Analyst for Logistics Sector

 We are seeking a Junior Data Analyst to join our logistics team. The ideal candidate will be

Responsibilities:
- Analyze data to identify trends and patterns in logistics operations
- Develop reports and dashboards to communicate insights to stakeholders
- Collaborate with other team members to identify areas for improvement in logistics operati
- Work with IT team to ensure data accuracy and integrity
- Develop and maintain data models to support logistics operations
- Identify opportunities for automation and process improvement
- Participate in project planning and execution
- Communicate effectively with stakeholders to understand their needs and requirements
- Provide training and support to other team members on data analysis tools and techniques
- Stay up-to-date with industry trends and best practices in data analysis

Requirements:
- Bachelor's degree in Computer Science, Mathematics, Statistics, or related field
- Strong analytical skills and ability to work with large datasets
- Proficiency in SQL and Excel
- Experience with data visualization tools such as Tableau or Power BI
- Familiarity with programming languages such as Python or R
- Knowledge of logistics operations and supply chain management
- Experience with project management methodologies such as Agile or Waterfall
- Excellent communication and collaboration skills
- Ability to work independently and as part of a team
- Strong attention to detail and ability to prioritize tasks

If you are passionate about data analysis and logistics operations, we encourage you to app]

Sample CV

```python
with open ("sample_cv.txt") as f:
    sample_cv = f.readlines()

sample_cv =' '.join(sample_cv)

print(sample_cv)
```

JOHN DOE
123 Main Street | Anytown, USA 12345 | (123) 456-7890 | john.doe@email.com

SUMMARY

Masters-educated Data Analyst with 3 years of experience in the retail sector. Proficient i

EDUCATION
Master of Arts in Economics, Ivy League University, Anytown, USA (2017)
Bachelor of Science in Economics, State University, Anytown, USA (2015)

EXPERIENCE
Data Analyst, Retail Company, Anytown, USA (2017-2020)
- Conducted statistical analysis on sales data to identify trends and inform business decis
- Developed and maintained data models to forecast sales and inventory levels
- Created interactive dashboards to visualize sales data and track performance metrics
- Collaborated with cross-functional teams to identify opportunities for process improvement
- Led daily stand-up meetings as Scrum Master to ensure project progress and team alignment

Data Analyst Intern, Retail Company, Anytown, USA (2016-2017)
- Assisted senior analysts with data cleaning and preparation
- Conducted ad-hoc analysis to support business decisions
- Developed basic data visualizations for internal reporting

SKILLS
- Statistical analysis: regression analysis, time series analysis, hypothesis testing
- Data modeling: linear regression, logistic regression, decision trees
- Data visualization: Tableau, Power BI, D3.js
- Project management: Scrum, Kanban
- Programming languages: Python, R, SQL

CERTIFICATIONS
Certified Scrum Master, Scrum Alliance

REFERENCES
Available upon request.

Automatically generated rejection letter

```
{pyton, echo = FALSE} print_rejection_letter(input_job = sample_job, input_cv
= sample_cv)
```

How does it work? Set up.

I set up the GPT connection via the API using the get_completion function, as discussed by
Isa Fulford and Andrew NG in their deeplearning.ai course.

```python
import openai
import os
import time

##COMMENT UP THIS CODE!!!
with open('/home/pete/Documents/gpt_key.txt') as t:
  openai.api_key = t.readlines()[0].strip("\n")


def get_completion(prompt, model="gpt-3.5-turbo", temperature = 0):
    messages = [{"role": "user", "content": prompt}]
    response = openai.ChatCompletion.create(
        model=model,
        messages=messages,
        temperature=temperature, # this is the degree of randomness of the model's output
    )
    return response.choices[0].message["content"]
```

Lets test if the function works

```python
time.sleep(20) # A forced break to ensure this does not cross the 3 API calls per minute l
prompt_conn_test = f"""Are there any hurricanes in Hampshire today?"""

response = get_completion(prompt_conn_test)
print(response)
```

As an AI language model, I do not have access to real-time weather information. However, Hamp

So we have a connection. Now lets get a fictionalized job description and a CV.

How does it work? Job description

We can generate the job description using GPT:

```python
prompt_job_descript = f"""Could you please write a job description for a junior data analy
time.sleep(20)
job_description = get_completion(prompt_job_descript)
print(job_description)
```

```
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If you are passionate about data analysis and logistics operations, we encourage you to apply
```

Hence, we built ourselves a fictionalized job description. A little not on the prompt. I wanted
to have a specific enough description to generate discrepencies from a random GPT-generated
CV (which we will do in the next section). I also wanted the description to not be too long
(mostly for my own sake - I don't feel like reading a 2,000 word fictitious job description). Last,
on the first iteration, I didn't like the requirements section enough - they were a little "wooly"
- not something that a traditional ATS could easily detect by scanning for keywords. Hence, I
added the section asking GPT to return a specific skill list for the requirements.

How does it work? Generate a sample CV

Again, I will rely on GPT for this. The original job description is one for a data analyst in a
logistics sector. John Doe, our fictional rejectee will hold a Masters in economics and will have

had three years experience as a data analyst in the retail sector. What Herbert will lack on his CV is evidence of knowledge of logistics, nothing on Excel, no programming languages. He will specify that he is a certified Scrum Master, but not mention project management explicitly. I might then throw in some additional curve balls into the prompt to get some more controlled clashes with the job description.

```python
prompt_cv = f"""Can you please generate a CV for one John Doe. John holds a Masters in eco
time.sleep(20)
cv_text = get_completion(prompt_cv, temperature = 0.5) #Added some variability to the resp

print(cv_text)
```

```
John Doe
123 Main Street
Anytown, USA 12345
(555) 555-5555
johndoe@email.com

Objective:
To obtain a position as a logistics data analyst where I can utilize my analytical skills and

Education:
Master of Arts in Economics, Ivy League University, May 2017
Bachelor of Arts in Economics, State University, May 2015

Experience:
Data Analyst, Retail Company, May 2017 - May 2020
- Analyzed sales data to identify trends and opportunities for growth
- Created and maintained reports to track sales performance and inventory levels
- Collaborated with cross-functional teams to develop pricing strategies and promotional camp
- Conducted market research to inform product development and marketing efforts

Scrum Master, Retail Company, May 2019 - May 2020
- Facilitated daily stand-up meetings and sprint planning sessions
- Coordinated with product owners to prioritize and manage the backlog
- Tracked team progress and identified areas for improvement
- Fostered a culture of collaboration, continuous improvement, and accountability

Skills:
- Data analysis and visualization using tools such as Tableau and Power BI
- Statistical analysis and modeling using software such as R and SAS
- Project management and agile methodologies as a Scrum master
```

- Strong communication and collaboration skills

Certifications:
- Tableau Desktop Specialist
- Scrum Master Certification (Scrum Alliance)

References:
Available upon request.

```python
##Lets save the job description and the CV. This will allow keeping the number of API call
# with open('sample_job.txt', 'w') as sj:
#    sj.write(job_description)
#
# with open('sample_cv.txt', 'w') as cv:
#    cv.write(cv_text)
```

How does it work? Use GPT to screen the sample CV

At this stage we have a CV and a job description. In the target workflow we would run the CV through an ATS, and use that to get a list of mis-matches. However, as I don't have access to a real ATS, I will once again use a GPT prompt instead.

```python
with open ("sample_job.txt") as f:
    sample_job = f.readlines()

with open ("sample_cv.txt") as f:
    sample_cv = f.readlines()


sample_cv =' '.join(sample_cv)
sample_job =' '.join(sample_job)

prompt = """Please compare the CV to the Job Description. Return the list of skills requir

time.sleep(20)
cv_match = get_completion(prompt, temperature  = 0.75)
print(cv_match)
```

Dear John Doe,

Thank you for your application for the Junior Data Analyst position in the logistics sector.

Although your experience as a Data Analyst in the retail industry is impressive and your edu

We encourage you to continue developing your skills in these areas to increase your chances

Thank you for your interest in our organization, and we wish you all the best in your future

Best regards,
George, Automated HR assistant

The final step is to wrap the above bit of code into a function.

```python
def print_rejection_letter(input_job, input_cv, temperature = 0.5):
    prompt = """Please compare the CV to the Job Description. Return the list of skills re
    cv_match = get_completion(prompt, temperature  = temperature)
    return cv_match
```

Test the function:

```python
time.sleep(20)
rejection = print_rejection_letter(input_job = sample_job, input_cv = sample_cv)
print(rejection)
```

Dear John,

Thank you for your recent application for the Junior Data Analyst position in our logistics t

We compared your CV to the job description and found that while you have a strong background

We encourage you to continue to develop your skills and experience in these areas. You may wa

Thank you again for your interest in our company.

Best regards,

George, Automated HR assistant