Supplement to - Segmentation-Free Handwriting Recognition in Historical Handwritten Documents Using Large Vision-Language Models

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The following document describes the prompts used in the main paper *Segmentation-Free Handwriting Recognition in Historical Handwritten Documents Using Large Vision-Language Models* by Tim Hallyburton, Ludovic Berset, Gernot A. Fink, Andreas Fischer and Anna Scius-Bertrand.

Files used in few-shot scenarios were encoded to a standard base64 format, original images are provided in the CM/1 database.

1 Prompts

1.1 Prompt for Washington and IAM Lines:

```
prompt = ( ”This image contains a scanned handwritten document.
Transcribe all the visible handwritten text as accurately as possible.
Do not add or skip any words.
Output only the text without additional commentary or explanation.” )
```

1.2 Prompt for Washington and IAM Pages:

```
prompt = ( ”This image contains a scanned handwritten document.
Transcribe all the visible handwritten text as accurately as possible, preserving the original line breaks using '\n'.
Do not add or skip any words.
Output only the text without additional commentary or explanation.” )
```

1.3 Prompt for CM1-HTR firstname

```
prompt = ( ”Transcribe exactly the handwritten firstname shown in this image.
The name comes from Central or Eastern Europe in the post–World War II period.
Output only the name as plain text, without any additional words, explanation, or punctuation.”)
```

1.4 Prompt for CM1-HTR lastname

```
prompt = ( ”Transcribe exactly the handwritten lastname shown in this image.
The name comes from Central or Eastern Europe in the post–World War II period.
Output only the name as plain text, without any additional words, explanation, or punctuation.”)
```

1.5 Prompt for CM1-HTR birthdate

```
{”role”: ”system”,
    ”content”: [
            ”type”: ”text”,
            ”text”: ”””Transcribe exactly the handwritten birthdate shown in this image.\n
Output only the birthdate in the format YYYY–MM–DD, with no additional words, explanation, or punctuation.\n\n
```

```
\nNote : Remember as this for is from post World War 2, birthdates
    greater than 1935 are very unlikely to be appearing because the
    person who filled up the form has to be at least 16 years old, 1950
    is taken as the average date when the form was filled up so: 1950 -
    16 = 1934
Formatting rule:\n"
- Convert the handwritten date into the standard format YYYY-MM-DD.\n"
- For example, the handwritten input '5-12.923' must be interpreted as
    '1923-12-05'."Here are some examples:
Example 1:""",
    },
    {
        "type": "image_url",
        "image_url": {
            "url": f"{self.
                _encode_image_to_base64(os.path.join('..', 'raw', 'cm1',
                 'cropped', '79045043_birthdate.jpg'))}"
        },
    },
    {
        "type": "text",
        "text": "Excepted output : '1919-11-29'",
    },
    {
        "type": "text",
        "text": "Explanation: The birthdate is written as '29.11.19'
           was interpreted as 1919-11-29 and converted into the
           standard format.",
    },
    {"type": "text", "text": "Example 2:"},
    {
        "type": "image_url",
        "image_url": {
            "url": f"{self.
                _encode_image_to_base64(os.path.join('..', 'raw', 'cm1',
                 'cropped', '79292754_birthdate.jpg'))}"
        },
    },
    {
        "type": "text",
        "text": "Excepted output : '1926-10-06'",
    },
    {
        "type": "text",
        "text": "Explanation: The birthdate is written as '6.10.1926'
           was interpreted as 1926-10-06 and converted into the
           standard format.",
    },
```

```
    {"type": "text", "text": "Example 3:"},
    {
        "type": "image_url",
        "image_url": {
            "url": f"{self.
                _encode_image_to_base64(os.path.join('..', 'raw', 'cm1',
                 'cropped', '79810808_birthdate.jpg'))}"
        },
    },
    {
        "type": "text",
        "text": "Excepted output : '1902-06-08'",
    },
    {
        "type": "text",
        "text": "Explanation: The birthdate is written as '8.VI.1902'
           was interpreted as 1902-06-08 and converted into the
           standard format.",
    }
]
"role": "user",
"content": [
    {"type": "text", "text": "Now apply the same logic to the following
        image"},
    {"type": "image_url", "image_url": {"url": data_url}},
],
```

1.6 Structured Output for all the above:

```
response_format = {
    "type": json_schema,
    json_schema: {
        "name": "handwritten_text_recognition",
        "strict": True,
        "schema": {
            "type": "object",
            "properties": {
                "transcription": {
                    "type": "string",
                    "description": "Transcription of the handwritten
                       text in the given image.",
                },
            },
            "required": ["transcription"],
            "additionalProperties": False,
        },
    },
```

}

1.7 Prompt for CM1 Information Extraction

```
messages = [
    {
        "role": "system",
        "content": [
            {
                "type": "text",
                "text": """You are an expert in information extraction
                    from old documents.
You will receive a scanned form from post World War 2, with handwritten
    text and a prompt.
Your task is to extract the required fields.
The output format must be a JSON as follow:"
{"Name": "Lastname of the main person",
Vorname": "Firstname of the main person",
Geb-Dat": "YYYY-MM-DD",}

Below is an example of how to extract the required fields:
Example 1:"""},
            {
                "type": "image_url",
                "image_url": {
                    "url": f"{self.
                        _encode_image_to_base64(os.path.join('..', 'raw
                        ', 'cm1', 'clustered', '29', '79045043.jpg'))}"
                },
            },
            {
                "type": "text",
                "text": "Excepted output : {'Name': 'DROCHNER', '
                    Vorname': 'Arthur', 'Geb-Dat': '1919-11-29'}",
            },
            {
                "type": "text",
                "text": "Explanation : The image contains a form filled
                     by Arthur Karl DROCHNER, born on 29.11.29, The
                    middle name 'Karl' is ignored as it's not a required
                     field and the birthdate has been rewritten as
                    1919-11-29 to fit the excepted format. The output is
                     in the required JSON format.",
            },
            {"type": "text", "text": "Example 2:"},
            {
                "type": "image_url",
```

```
            "image_url": {
                "url": f"{self.
                    _encode_image_to_base64(os.path.join('..', 'raw
                    ', 'cm1', 'clustered', '38', '79775032.jpg'))}"
            },
        },
        {
            "type": "text",
            "text": "Excepted output : {'Name': 'ERISTOFF', '
               Vorname': 'BORIS', 'Geb-Dat': '1892-04-29'}",
        },
        {
            "type": "text",
            "text": """Explanation: In this form, there is a human
               error     the first name "BORIS" was mistakenly
               written in the last name field, and the actual last
               name "ERISTOFF" appears outside the intended field (
               top left). This was corrected based on layout and
               handwriting cues. The birthdate "29.4.892" was
               interpreted as 29.04.1892 and converted into the
               standard format. Only the relevant names were
               extracted, and the output follows the expected JSON
               format.""",
        },
        {"type": "text", "text": "Example 3:"},
        {
            "type": "image_url",
            "image_url": {
                "url": f"{self.
                    _encode_image_to_base64(os.path.join('..', 'raw
                    ', 'cm1', 'clustered', '16', '79124487.jpg'))}"
            },
        },
        {
            "type": "text",
            "text": "Excepted output : {'Name': 'GY RFI', 'Vorname
               ': 'LUDWIG', 'Geb-Dat': '1924-02-08'}",
        },
        {
            "type": "text",
            "text": """Explanation: The image contains a form
               filled by Ludwing GY RFI. He wrote his birthdate as
                '8 Feb. 1924' was interpreted as 08.02.1924 and
               converted into the standard format. Only the
               relevant names for the main person were extracted.
               The output follows the required JSON format.""",
        },
    ],
```

```
    },
    {
        "role": "user",
        "content": [
            {"type": "text", "text": "\nNow apply the same logic to the
                following image."
"\nNote: There may be additional names on the form (e.g., spouse or
   children). Extract only the first given name of the person who
   filled out the form. Do not include names belonging to others or any
    middle names."
"\nNote : Remember as this for is from post World War 2, birthdates
   greater than 1935 are very unlikely to be appearing because the
   person who filled up the form has to be at least 16 years old, 1950
   is taken as the average date when the form was filled up so: 1950 -
   16 = 1934"
"\nReturn only the JSON in the same format."},
            {"type": "image_url", "image_url": {"url": data_url}},
        ],
    },
        ]
```

1.8 Structured Output for the CM1 Information extraction:

```
response_format = {
    "type": json_schema,
    json_schema: {
        "name": "handwritten_text_recognition",
        "strict": True,
        "schema": {
            "type": "object",
            "properties": {
                "Name": {
                    "type": "string",
                    "description": "Lastname of the person",
                },
                "Vorname": {
                    "type": "string",
                    "description": "Firstname of the person",
                },
                "Geb-Dat": {
                    "type": "string",
                    "description": "YYYY-MM-DD",
                },
            },
            "required": ["Name", "Vorname", "Geb-Dat"],
            "additionalProperties": False,
        },
```

```
        },
    }
```