Resume Extraction Web App with Twilio Integration

Ashitha P

pallathashitha@gmail.com

Abstract—This project implements a Flask-based resume extraction system that automatically identifies and extracts essential information such as name, email, phone number, education, and skills from uploaded resumes.The system processes both PDF and DOCX files, extracts text, and uses a combination of regular expressions and NLP techniques for accurate information retrieval. Once extracted, the details are stored in Google Sheets and Google Drive and are also sent to users through the Twilio WhatsApp API for instant confirmation.

1 TOOLS AND TECHNOLOGIES

- **Python:** Core language for development
- **Flask:** Lightweight web framework for handling routes and HTTP requests
- **pdfplumber:** To extract text from PDF files
- **docx2txt:** To extract text from Word documents
- **Regex & spaCy:** For detecting emails, phone numbers, and names using pattern matching and NLP
- **phonenumbers:** To accurately parse and validate mobile numbers
- **Twilio API:** For sending extracted details via WhatsApp messages
- **Google Drive & Sheets API:** For storing extracted files and structured data
- **dotenv:** To securely manage API credentials

2 IMPLEMENTATION STEPS

- **Setup Environment:** Installed dependencies and configured `.env` with API keys and tokens.
- **Text Extraction:** Used `pdfplumber` and `docx2txt` to convert resumes into plain text.
- **Data Extraction:**
  - Applied `regex` for email and name detection
  - Used the `phonenumbers` library for reliable number extraction
  - Integrated `spaCy` for named entity recognition (fallback)
- **Backend Processing:**

- Built a Flask route `/whatsapp` to receive files and user messages
- Processed uploaded resumes, extracted data, and saved it to Google Sheets
- **Twilio Integration:**
  - Configured Twilio WhatsApp Sandbox
  - Authenticated using `ACCOUNT_SID` and `AUTH_TOKEN`
  - Sent structured information (Name, Email, Phone) back to the user instantly
- **Testing & Deployment:** Deployed the Flask app locally and tested full functionality using the Twilio sandbox for WhatsApp messaging.

OUTCOME

The final demo enables users to:

- Upload resumes via WhatsApp
- Automatically extract and structure key information
- Save data to Google Sheets and Drive
- Receive confirmation messages instantly

Result:

A fully functional **Flask + Twilio**-powered resume parsing system that combines automation, natural language processing, and real-time messaging — streamlining recruitment workflows for HR and hiring platforms.
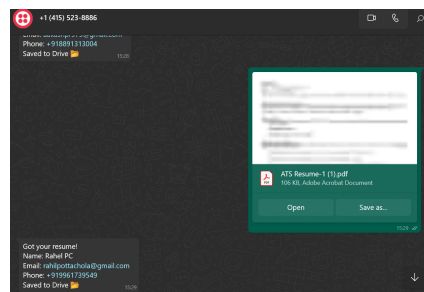

Figure 1—Resume file uploaded via WhatsApp using Twilio API

Figure 2—Extracted details stored in Google Sheets automatically